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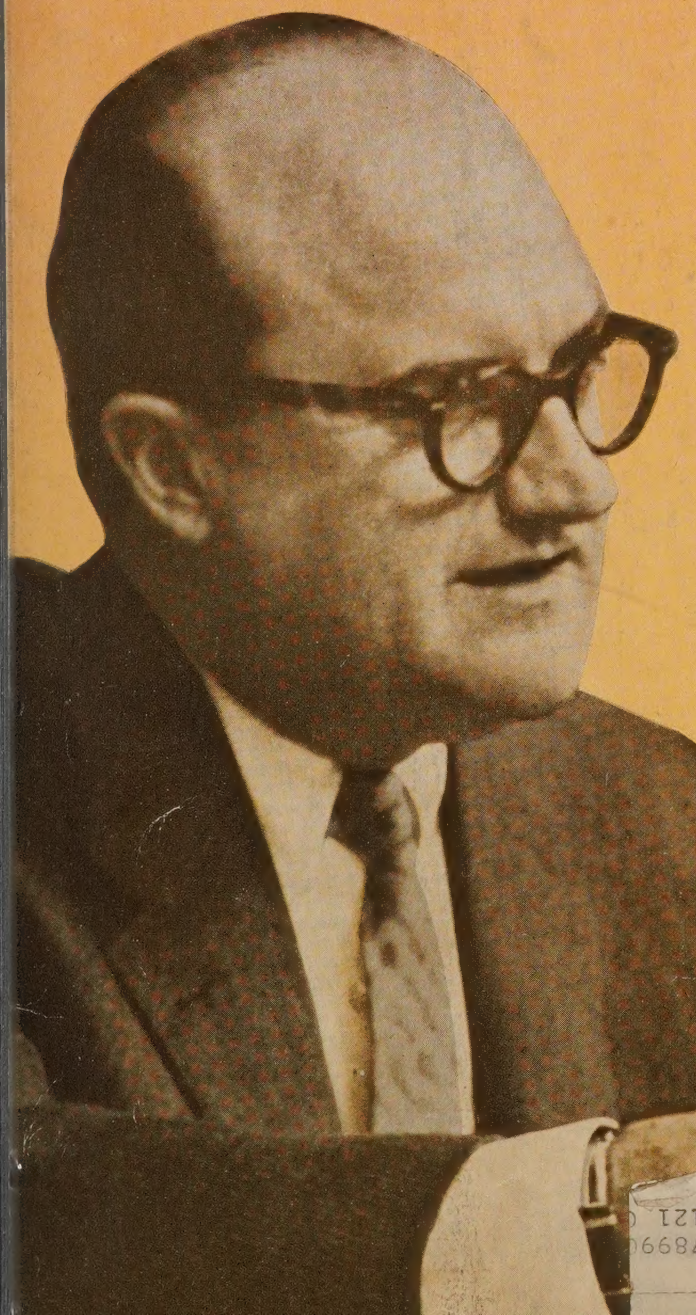



# *Business Needs An Intelligence Director* ...page 20

*By Marion Harper, Jr.*

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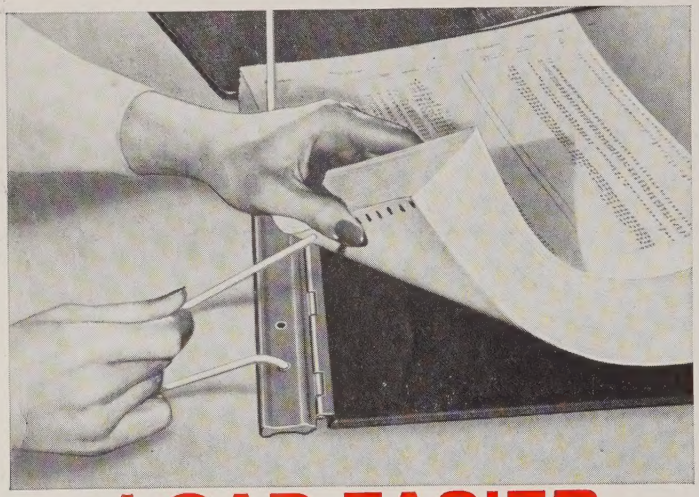

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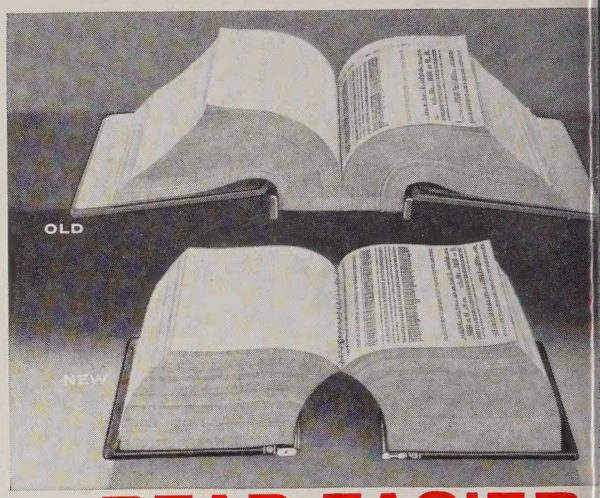


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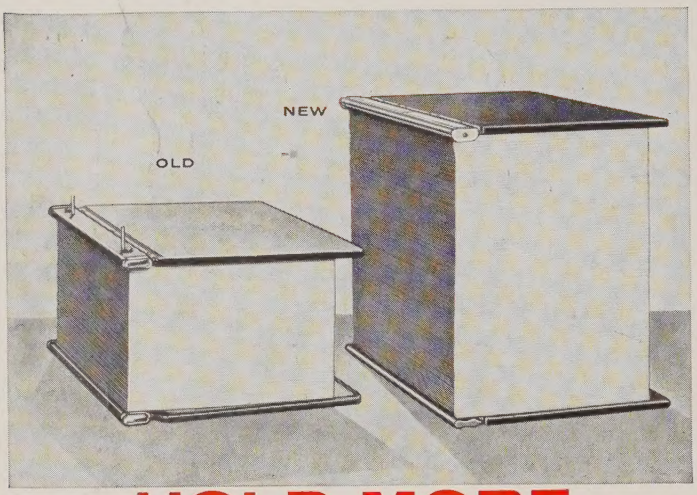


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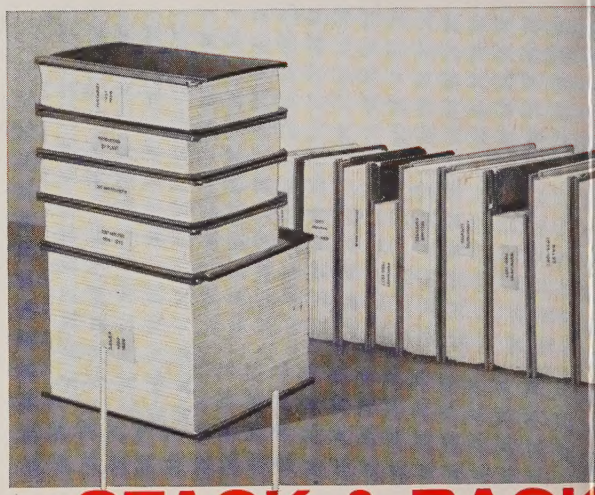

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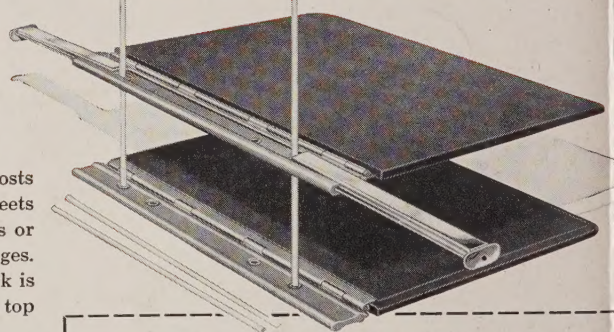

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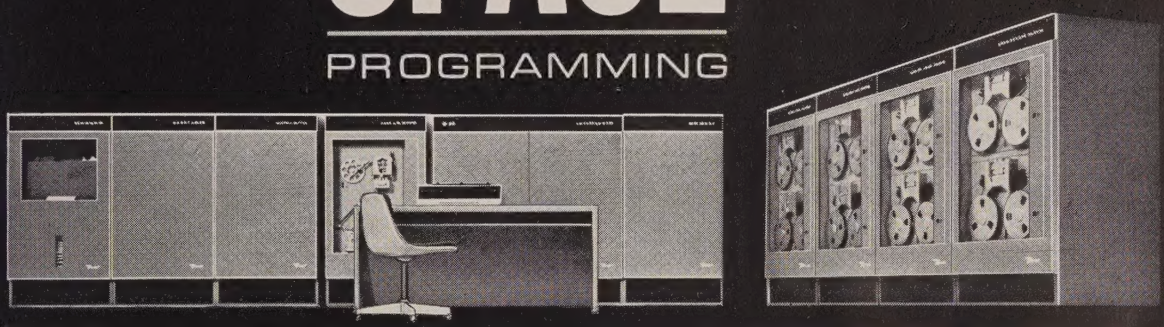

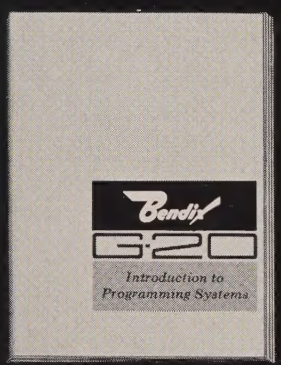


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Management
*and*
# BUSINESS AUTOMATION

**March, 1961**
Vol. 5, No. 3

*New ideas, developments, applications, results, and the human impact of business automation in commerce, industry and government.*





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# *Scanning the issue*


THE RIGHT PRODUCTS, at the right price and in adequate supply, are the key benefits a customer receives from the new distribution system originated by Raytheon's Distributor Products Division. Known as "Unimarket," the system was designed by John T. Thompson, manager of the products division, who was interested in obtaining market penetration for each of Raytheon's 2,500 products. Heart of the system is the Unicenter, a modern 60,000 square foot building located on Providence Turnpike, Westwood, Mass. The Unicenter is linked to Raytheon's six regional offices by a network of Western Union communications devices which transmit Flexowriter tapes and produce punched cards at the Westwood headquarters. Jet cargo planes of American Airlines play an important role in the system, having reduced America, traveling-wise to a bare "five hours wide and two hours deep." The whole story is found on page 14: **"Unimarket Delivers the Goods,"** by Thom Grant, Eastern Editor.

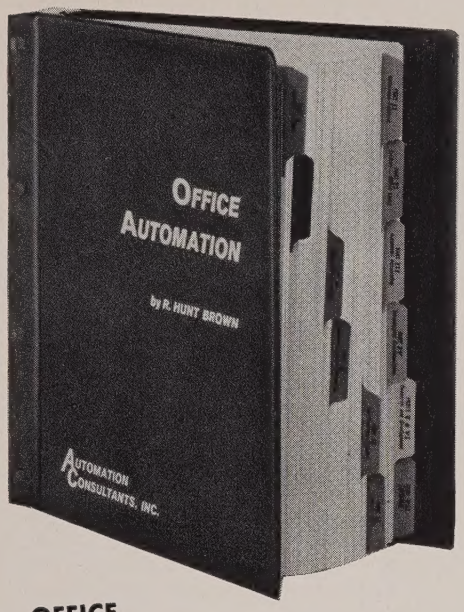
Lots of people are listening to what Marion Harper is saying now-a-days. The president and board chairman of Interpublic, Inc. (Formerly McCann-Erickson, Inc.) world's second largest advertising agency, Mr. Harper believes, for one thing, that business must look to research for its future. And to get the most value from that research **"Business Needs an Intelligence Director,"** by Marion Harper, Jr., page 20. In accepting the 1960 Parlin Memorial Lecture Award, sponsored by the Philadelphia Chapter of the American Marketing Association, Mr. Harper presented a number of premises to emphasize the need for a new profession to aid management. This article is based on those premises, a description of who this man is, what he would do in the capacity of Intelligence Director and an outline of a program for establishing the education of this person. As tangible evidence of his intense interest in this project, Mr. Harper has pledged, on behalf of Interpublic, a fund of $50,000, to an interested University which would establish a program of studies leading to the graduate degree in research management.

An image of cleanliness and quality surrounds every operation of the famous Gerber baby food plant in Fremont, Michigan; and printing is no exception. "Quality in printed matter, as with everything else, is a religion to us," explains Richard Hastings, Gerber's general office manager. About a year ago, Hastings started a search for a system designed to bring that quality to all of Gerber's black-and-white printed material. Less than a year later he has an established in-plant printing shop, producing an "impossible" high quality of office reproduction. One of the secrets is a new system called the Ektalith method: **"Quality Office Printing Reflects the Gerber Image,"** page 24.

Each month more than 300 highly-trained auditors spend their full time collecting marketing data on some 8,000 products in more than 6,000 food and drug stores throughout the nation. The auditors are gathering data for clients of the Retail Index Division of A. C. Nielsen Co., the world's largest market research organization. This data, funneled into Nielsen's data processing center in Chicago, is the basis for market research reports for 46 of the top 50 advertisers in the nation. Over a million cards are keypunched monthly and processed through six IBM 650 computers to produce the Retail Index. Nielsen has been using punched card equipment since 1933 and now has an annual rental exceeding $900,000: **"A. C. Nielsen—The Statistic Seekers,"** page 28.

# TO KEEP INFORMED . . .

**every operating executive in data processing needs these two basic reference services**




## OFFICE AUTOMATION

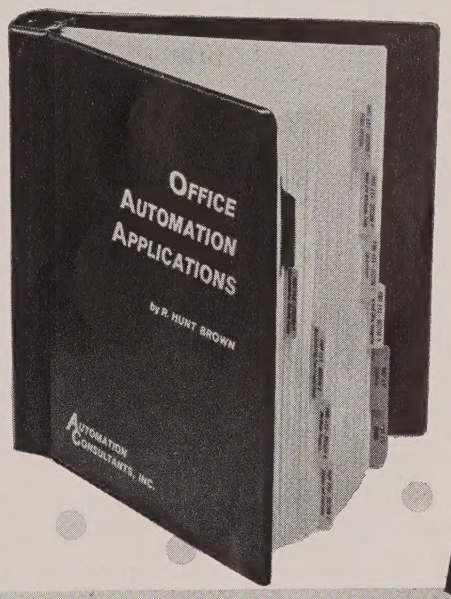
**Featuring detailed descriptions of machines and equipment.**

Explains the capabilities of all types of IDP/EDP machines and hardware including input equipment, computers, memory systems, output equipment, and associated peripheral devices. Contains valuable reference material including programming, bibliographies, sociological aspects, research and development.

## OFFICE AUTOMATION APPLICATIONS

**Featuring case studies of actual automated systems.**

Explains how automated data processing systems are currently operating in named organizations. Covers inventory control, sales analysis, billing, production control, accounts payable, order-invoice systems, forms control, high-speed addressing, operations research, communications, and other procedures. Contains hundreds of photos, forms, flow charts and diagrams . . . plus a unique directory of computer users.




These references are the only loose-leaf services available devoted to electronic data processing and the full scope of automation in the office. The latest hardware and installations are emphasized with very little attention given to conventional punched card processes. A monthly updating subscription insures that each volume is completely up-to-date and can be relied upon as the basic, authoritative source of IDP/EDP information. Written in non-technical language, all material can be understood by executives in top or middle management.

Each handbook contains 600-800 pages with over 500 illustrations—equal to an entire series of bound books. Hard vinyl covers, tab separator sheets, and a long-lasting 3-prong mechanism insure long life and easy use.

Automation Consultants, Inc., is now owned and managed by the publishers of MANAGEMENT AND BUSINESS AUTOMATION and has available the extensive editorial resources of the magazine. The experienced writing staff of the loose-leaf services is headed by R. Hunt Brown, founder of the company. Over-all editorial direction is provided by Arnold E. Keller, MBA/s Editor.

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# RANDOM ACCESS

*Information bits from the Editor's memory file*

## Blue Skies for Tomorrow

The "Blue Sky" men in the laboratories are constantly working to develop tomorrow's realities. Within recent weeks we have learned of two developments that present great possibilities for the future of business communications and data processing.

At New York University's Washington Square College, Dr. Hartmut P. Kallmann, director of the solid state physics laboratory, has developed a device that will make possible the storage of up to 40,000 average English words in one square quarter-inch bit of chemical. A five-letter word could be entered into storage in 125 millionths of a second. Dr. Kallmann's experiment involves P. I. P. (Persistent Internal Polarization). His interest is in the scientific aspects of the device, but he is also aware of computer entry potentials.

Working at the Bell Telephone Laboratories, Dr. Ali Javan, a physicist from Persia, has created a device which, in principle, can transmit a million simultaneous telephone conversations over a beam of light. Called a "continuously operating maser," the device produces a light that can be manipulated as if it were a radio wave. The broadcast frequency of the light beam is a thousand times higher than the highest radar frequency. The maser can shoot a beam of light to the moon and have it spread out only a mile in diameter.

## Over 21

Dr. Edward O. Thorpe, a mathematical instructor at Massachusetts Institute of Technology, has announced a "Favorable Strategy for Blackjack." Reduced from mathematical language to layman's level, this announcement means that Thorpe has an "unbeatable" system for winning at the famous old gambling game.

The young instructor, 28, has spent many months feeding data into an IBM 704 computer and now claims it is possible to beat the game 99 percent of the time. His formula requires that the player memorize what cards have been played and also a chart of favorable and unfavorable hands. He suggests that a player should begin with a stake of $3,200. This amount, split into 80 units of $40 each should produce winnings of $10 an hour.

Officials of Las Vegas' gambling casinos have extended a welcome to Dr. Thorpe and his computer—as well as his cash. Dr. Thorpe, whose salary is reported at $7,000 a year, has not indicated his acceptance to date.

## Double Pay

Some $40,000 worth of duplicate dividend checks were mailed to customers of Merrill Lynch, Pierce, Fenner & Smith recently, not as a bonus, but as a result of a mix-up in the computer room.

The daily press gleefully reported the incident as an IBM 705 "gone haywire." Actually, the duplication involved the internal labelling of a special edit tape request which was placed in the library log in error. The following day a printout from the 705 alerted Neal See, manager of EDP at MLPF&S, of the duplication, but the checks were already mailed.—A.E.K.


# Tape can pay you dividends

Adding Teletype tape units to your present Teletype page printer can pay you handsome dividends. As your printer is used for sending and receiving messages and data, the information can at the same time be captured in perforated tape form—as a by-product, without effort on the part of your operator. This tape, then, has many cost-saving uses:

**Save time, increase capacity**—the tape can be used to retransmit all or part of the information to other locations . . . it is an easily storable record . . . it can be used over and over to save typing effort.

**Greater accuracy efficiency**—using punched tape for repetitive data such as addresses, product descriptions and other fixed information not only eliminates retyping but also saves possible errors in preparing purchase orders, sales records, payrolls and the like.

**Business machine tie-in**—the tape is compatible with many modern business machines and can also serve as "input data" for certain types of computers.

In these and many other ways, the addition of Teletype tape units to your present Teletype page printer can pay you important dividends. Teletype Corporation manufactures this equipment for the Bell System and others who require the utmost reliability from their data communications. Teletype equipment can be used with Data-Phone and other communications services.

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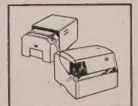

Tape Reader and Typing Tape Punch

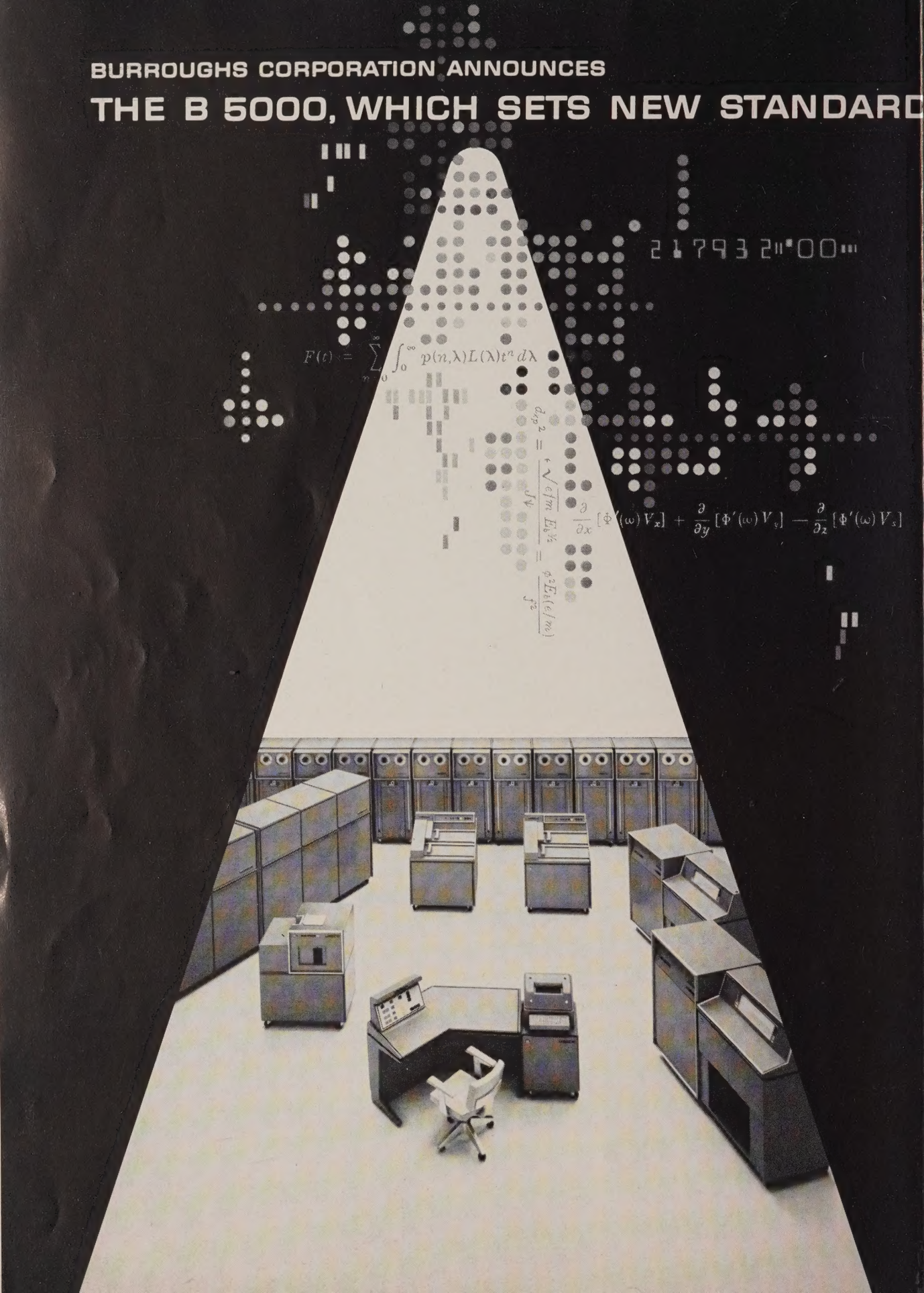

Send-Receive Page Printer


Automatic Send-Receive Set

More Information Circle Reader Service Card No. 158

BURROUGHS CORPORATION ANNOUNCES

# THE B 5000, WHICH SETS NEW STANDARD



# PROBLEM SOLVING & DATA PROCESSING

**The new Burroughs B 5000 Information Processing System is a decided departure from conventional computer concepts. It is a problem-oriented system. Its markedly different logic and language are in large part dictated by the characteristics of ALGOL and COBOL. And it incorporates a complete set of operating, monitoring and service routines.**

Additional operational features include an average add execution time of three microseconds, and a memory cycle time of six microseconds. Both character- and word-oriented, the B 5000 operates in binary *and* alphanumeric modes; a single set of arithmetic commands operates interchangeably on both fixed-point and floating-point numbers.

More important than these features is the fact that they combine with compiler-oriented logic and language to provide a new concept in computing—an integrated hardware-software system which sets:

## NEW STANDARDS OF PROGRAMMING EFFICIENCY

Incorporating logic and language designed to take advantage of modern compiler techniques, the B 5000 permits straightforward, efficient translation of common-language source programs. And it brings a new high in compilation speeds—20 to 50 times faster than those possible on conventional computer systems.

## NEW STANDARDS OF AUTOMATIC OPERATION

A Master Control Program, incorporating the automatic operating, monitoring and service routines, is pre-stored on a fast-access drum. It automatically schedules work according to pre-assigned priorities; allocates memory and input/output assignments; and maintains maximum-efficiency use of all components through a comprehensive interrupt system. As a result, human intervention is minimized, system efficiency maximized.

## NEW STANDARDS OF PROGRAM-INDEPENDENT MODULARITY

Availability of multiple, functionally independent modules provides the B 5000 with excellent system flexibility and expansibility. The system may include one or two independent processors; up to eight core memory modules with a total capacity of 32,768 48-bit words; and one or two fast-access bulk storage drums, each with a capacity of 32,768 words. Up to four independent input/output channels control a maximum of 26 input/output units, including up to 16 standard-format magnetic tape units. Additional input/output units include card punch and reader, two types of printer, plotter and keyboard.

## NEW STANDARDS OF EFFECTIVE MULTI- AND PARALLEL PROCESSING

The Program Independent Modularity of the B 5000, combined with the automatic scheduling and control features of the Master Control Program, permits multi-processing—the B 5000's normal mode of operation. The addition of a second functionally independent processor provides true parallel processing ability.

## NEW STANDARDS OF SYSTEM COMMUNICATION

The new B 5000 permits simultaneous on-line/off-line operation. It features completely flexible communication among all of its units. A central processor communicates with all memory units. Any input/output channel communicates with any peripheral equipment and any memory module.

## NEW STANDARDS OF THROUGH-PUT PER DOLLAR

All of these B 5000 features combine to provide an important new standard of through-put—the maximum amount of work in the shortest possible time, using the fewest possible components. The result is large-scale performance in the medium-price range.

For details in depth on the B 5000, call our nearby office. Or write for a copy of "The B 5000 Concept" to Data Processing Division, Burroughs Corporation, Detroit 32, Michigan.

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**Burroughs Corporation**

*"NEW DIMENSIONS / in electronics and data processing systems"*

# *from the* Publisher's Desk

THE NEED for better public relations in the general area of business automation is being brought into focus very sharply these days.

As our editorial (page 66) points out, the new administration is being fed some ridiculous propaganda by various union leaders and other individuals with axes to grind . . . propaganda which allegedly shows that automation has resulted in long bread lines of office clerks. The purposes are obvious: to scare white collar workers into joining industrial unions and to wangle government support for feather-bedding programs designed to freeze certain types of jobs whether needed or not.

The bald facts are that our nation's white collar work force continues to grow at a rapid rate with most employers at their wits' end trying to find more good office workers. The biggest computer user in the world, the United States Government, has the fastest growing white collar work force in existence.

Yet most EDP users, abetted by eager sales personnel of equipment manufacturers, have not seriously attempted to stress the many advantages of business automation other than personnel savings. The paradox is that these expected savings in salary expenses rarely are achieved in actual practice.

As publishers, we are not proud of the role played to date by the general press, radio/TV, and much of the business press. These opinion makers too often give their headlines to the alarmists and bury the "dull" facts, if they bother to relate them at all.

To combat the untruths and vicious propaganda of the scare artists, this publication is undertaking a research and promotion program to provide management with factual data on the effects of automation on office workers and to suggest ways of getting this story across.

Everyone engaged in business automation and data processing has a responsibility to improve the public image of this vital new concept. The need is urgent.

Charles W. Gilbert


**Management & BUSINESS AUTOMATION**

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# Letters

Dear Sir:

I am pleased to inform you that the editors of the Army Finance Journal and the Publications Committee of the Army Finance Association have selected you as a recipient of an Author Award for your article, "A Case of Missing Management" (See June 1959, Management and BUSINESS AUTOTION).

This award is a black marble-based ash tray bearing the seal of the Army Finance Association and a plate inscribed with your name.

I congratulate you upon earning the award and greatly appreciate your interest in the Army Finance Association.

*Paul A. Mayo*
*Major General, USA*
*President, Army Finance Association*

*Editor's Note: Many Thanks.*

Dear Sir:

I read your January 1961 issue with great interest. Everything in the magazine is of interest to me, including the article on page 12 "from the Publisher's Desk." Here your publisher reports that the people who are too busy to read the magazine constitute only a very small percentage of the total turnover.

May I suggest, however, that there is a way to reduce this unfortunate group even further. Do not have your articles continued in later portions of the magazine. Completing all articles without "Continued on Page . . ." will help assure the whole magazine will be read with interest.

*M. A. Roitman*
*Manager, Standard Methods*
*Goldblatt Bros., Inc.*

Dear Sir:

We have recently inagurated a "computer education" program for our employes, and after much deliberation have come to the conclusion that visual devices promote more interest than do lectures.

This being the case, the next step is to acquire the pertinent materials. Could you offer some suggestions as to where—other than the respective manufacturers—we could obtain movies or slides of the various electronic computers? Might there be some agency or library that would have these articles available for this purpose? We would appreciate your ideas on the subject.

*Donald J. Normandt*
*Systems Dept.*
*The Toni Co.*

*Editor's Note: The American Management Association and the National Office Management Association have slide and film material which might be helpful.*

Dear Sir:

We are making a survey of the various types of elevated floor systems which are available today for use with data processing systems. We are specifically interested in such aspects as reasonable cost, flexibility in order to accommodate future changes in equipment, fire resistance, minimum maintenance costs and structural characteristics to support typical computer loads.

For that reason, I wonder whether there might have been articles in past issues of Management and BUSINESS AUTOMATION which had information relative to existing or planned data processing equipment installations with specific reference to the type floor system used.

*P. M. Cladwell*
*Manager, Facilities Engineering*
*General Electric Co.*

*Editor's Note: Refer to the article "Basic Elements of Computer Environment" in the November 1960 issue. We would also be happy to supply the reader with a list of the names of manufacturing and consulting firms engaged in the field of providing proper computer environment to commercial installations.*


FRAGILE

**Multi-million dollar savings in control of inventory and distribution result from Raytheon's use of punched cards, direct wire network and jet cargo planes.**

# Unimarket Delivers the Goods

By Thom Grant

A JET-AGE CONCEPT in product distribution has effected a $2,000,000 reduction in duplicate inventory for the Distributor Products Division of Raytheon Co. Called Unimarket, the new system combines a network of modern communication devices, data processing equipment, automatic inventory controls and jet cargo planes.

Branch warehouses have been eliminated in favor of one central shipping point, and the distribution cycle compressed into a 48-hour delivery for distributors in principal cities across the nation. Heart of the Unimarket system is the Unicenter, located at Raytheon headquarters in Westwood, Mass.

According to John T. Thompson, general manager of the division, the system provides faster and complete service to the customer, eliminates three warehouses, in addition to the multi-million dollar saving in duplicate inventory. The center serves 700 Raytheon distributor customers with 18 basic electronic component lines representing over 2,500 separate items.

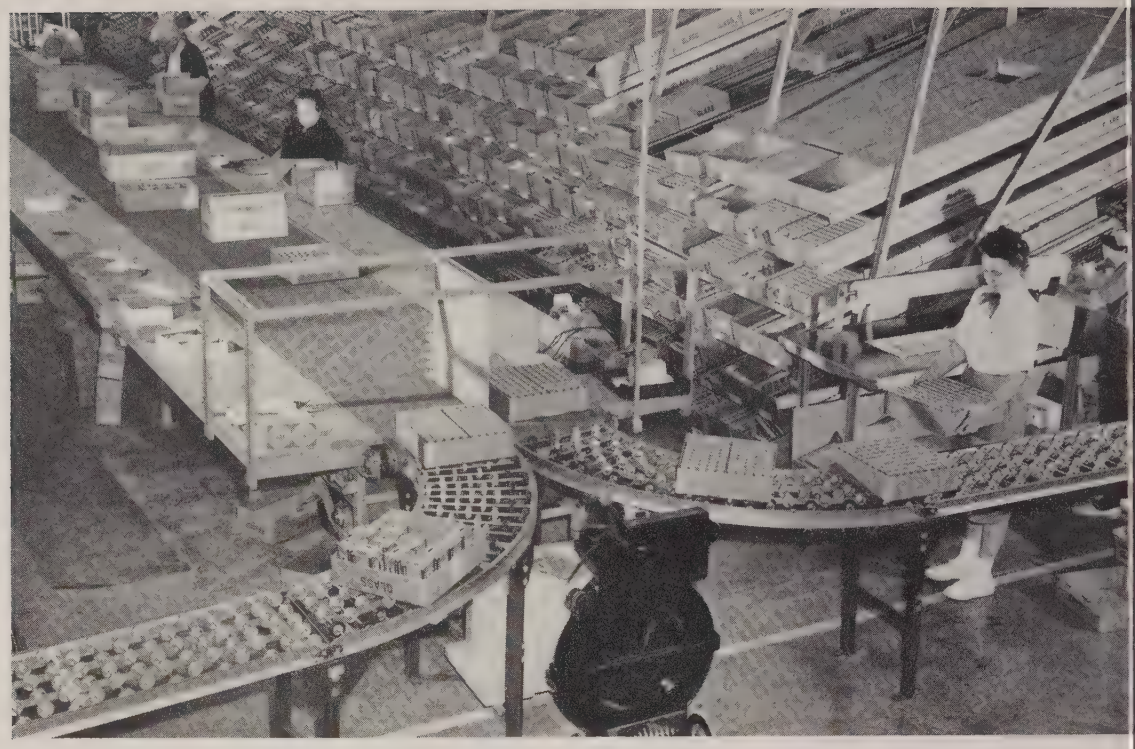
The 48-hour delivery time is in sharp contrast with the four to 12 days processing needed before the birth of the Unicenter. In addition to time savings, the company estimates it will eliminate 50% of its dollar investment in inventory. It will also eliminate $250,000 direct out-of-pocket expenses. Because of the rapidity and accuracy of the projected complete system, Raytheon expects to close the last of its warehouses during 1961.

Unimarket starts to function when local orders are received in any one of the regional offices in Atlanta, Houston, Dallas, Los Angeles, Portland and Chicago. Orders are processed from the mail, salesmen's forms and telephone requests. Each order is entered in a sequential register book using the next open number for identification. The numbers run consecutively for a 12-month period.


Two hours after receipt of order, electronic components are loaded on jet freighters.

The responsibility of the regional office requires that each order be processed by placing customer identification and order information on a master tape and on individual (for each item) edge-punched item cards. The orders are put in alpha-numerical sequence by product identification code and processed through a Friden Flexowriter producing a typewritten hard-copy of the order and a punched tape. As it is typed the operator enters

erators pick orders from supermarket-type
ives at Raytheon's Westwood Unicenter.



This massive conveyor carries branded and boxed components to Unicenter's supermarket-type shelves, where they are crated, sealed and "filed" according to type, assuring minimum excess inventory.

the date, register number, customer identification information and item quantity.

Each day at a pre-designated time, the order tape is processed through a direct line by Western Union Tape Reader to the Westwood Unicenter. A Western Union hard-copy is made at the time of transmission and compared with the Flexowriter and original order copies for accuracy. Tapes are stored for 24-hours in the event of inquiries and then destroyed. The orders—original order, Flexowriter copy and Western Union copy—are filed in sequence by customer.

The order transmission is received in Westwood on a Model 28 Western Union Printer which is equipped with a stock Raytheon triplicate order form. Simultaneously, a punched-card is produced in the data processing department on a Western Union Tele-Card Translating unit. The cards are held in suspense while the order is being processed.

The three-part order form proceeds to a clerical department for credit verification and stock availability checks. After clearance the order is sent to the warehouse for the picking, packing and shipping processes.

One copy of the order form is sent with the shipment as a packing list. After orders are accumulated during a day they are transported to various airlines at Logan International Airport, Boston, and flown to franchised distributors aboard jet cargo aircraft.

After the order has been shipped, the remaining two orders reverse their direction for checking and bookkeeping. One copy of the order is placed on file with the order service group, which received the original transmitted copy, for back-order follow-up. The final copy is forwarded to the data processing department for inventory up-dating and billing.

## Astride since inception

Data processing cards are punched for each item ordered, back-ordered or pending. The cards are match-merged with the original line-item cards and quantity priced. Final pricing and extending is made on an IBM 604 electronic calculator. Billing and daily Availability Reports are prepared on an IBM 407 printer. Summary cards are also prepared by product, account, branch and invoice. These are used for daily Billing Register and Monthly Promotion Statements.

Negative shipping situations, such as unsatis-

As shipment goes out "Rayci" cards are inserted by machine in each tube carton for distributor reordering.

Unicenter manager of System and Procedures, John M. Hayes checks output of data processing department.

factory credit and item unavailability, require that duplicate cards be cut for each back-ordered item.

The original card remains in the data processing department until the order is satisfied, and the duplicate is sent to the order service group for perpetual back-order up-dating. The Unimarket cycle closes out with the clerical department checking invoices before mailing them to distributors.

Since its inception the Unimarket has kept stride with recent advances in communications and data processing. Realizing the need to utilize all valuable contributions to the field, manager of systems and procedures, John M. Hayes, reports that in 1961 major customer's offices will be equipped with the new Raytheon Data-Tel. The Data-Tel provides for the transmission of data by directly dialing to the Unicenter and automatically creating a punched-card or tape. In addition, a revised order transmission schedule is being considered to further shorten the distribution cycle.

## "Our type of service"

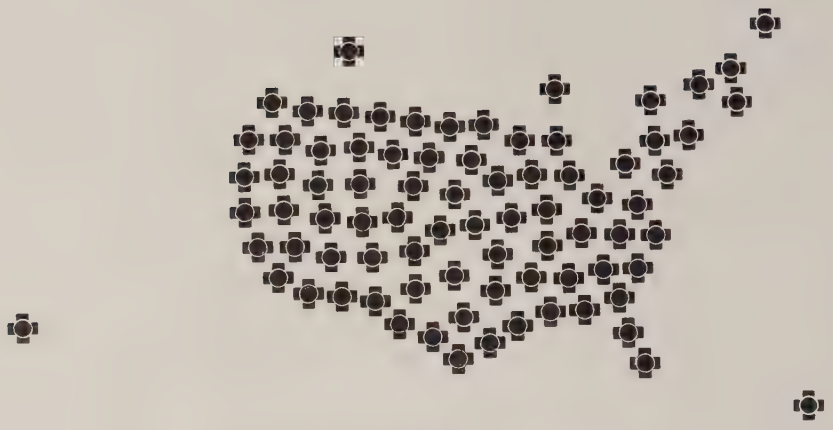
Raytheon organized its Distributor Products Division in 1958 to provide a point-source for distributors handling Raytheon products. Substantial volume increases in distribution made it necessary to consider such a program.

John Thompson noted that the purpose of the division was to provide maximum market penetration for each Raytheon product. The Raytheon program evolved from a three-part, place-utility formula which includes marketing, warehousing and servicing.

The first step was to procure all products from each of the five commercial manufacturing divisions of the company and distribute these to their end markets. The plan at that time involved prepunched data processing cards being mailed to regional warehouses. Once begun, it was only a natural evolution that in 1959 the division introduced a data processing system to automatically replenish distributor inventory. Late in 1959 the central facility in Westwood was built and became the division headquarters; thereby, enabling the company to begin dissolvement of regional warehouses. Western Union direct line equipment speeded up the punched card transmission step and satisfactorily met two parts of the Raytheon three-part distribution formula.

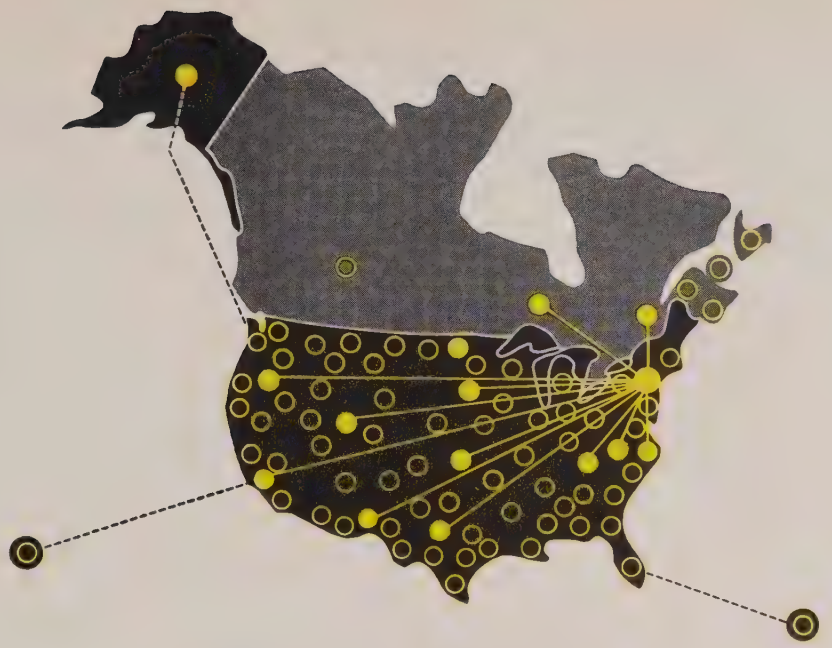
With the introduction of jet aircraft, American

*Continued on Page 34*



# PROBLEM:

to process away-from-home claims
for 83 Blue Cross Programs



# SOLUTION:

## a Western Union Private Wire System

Health insurance has become as widespread as the Blue Cross insignia . . . with 56,000,000 people in the United States, Canada, and Puerto Rico insured by 83 participating plans. Because Blue Cross protection travels with subscribers everywhere, a serious communications problem arose for this fast-growing organization: *How to process out-of-area claims with all possible accuracy and speed.*

A Western Union Private Wire System was the answer. Now—to process 23,000 claims daily—46,000 written messages travel over 22,000 miles of wire. Claim "okays" that formerly took hours now take minutes.

Through the work-saving advantages of this Western Union Private Wire System, Blue Cross Headquarters estimates savings of $975,000 a year on claim-processing alone.

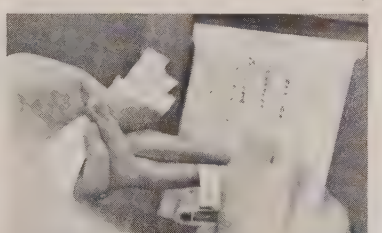
So useful has this system proved for all inter-Plan communications that capacity was raised recently to 216,000 words per day. That's an increase of almost 500% over 1959.

Couldn't your company—like Blue Cross—save both time and money and provide better service with a Western Union Private Wire System? It will be a system *specifically designed* for your company's communications needs.

For all the facts, without obligation, wire collect to: Western Union, Private Wire Division, New York, N. Y.

### How Blue Cross claims can be serviced from 50 states, Canada and Puerto Rico


**10:52 A.M.** Request for claim information is sent over a high-speed Duplex System, which permits simultaneous sending and receiving, from any of 107 offices.



**10:54 A.M.** Received at Blue Cross Private Wire "Braincenter" in New York City, message is instantly forwarded to member-plan covering patient.

**10:59 A.M.** Wire reply comes back to "Braincenter" from local Blue Cross plan on perforated tape, and is then immediately relayed to the originating hospital.

**WESTERN UNION**... first in Private Wire Systems

For More Information Circle Reader Service Card No. 163

**"What is needed is the development of a new profession to provide management with an intelligence service for the shaping of strategy and policy."**

# Business Needs An Intelligence Director

By Marion Harper, Jr.

IN MODERN BUSINESS, reliance on facts has reached proportions of a virtual explosion of research—in technology, operations and marketing. Research and development investment is now at the level of nine billion dollars and may rise to $18 billion over the next ten years. This expenditure can be considered an investment in management decision-making — to help determine the future environment for a particular course of action, or to indicate the superiority of one course of action over another. The need for processed information to help manage the future is now vastly increased.

To manage a business well is to manage its future; and to manage the future is to manage information. A good manager today can afford little time with the present and still less with the past. His concern must be for the future growth and success of the business or institution in his charge. He must make decisions every day, every hour, every minute—decisions affecting the future, and to some degree involving forecasts. Those who have responsibility for decisions—whether in business, government or wherever—hope that they are right decisions.

What is needed is the development of a new profession to provide management with an intelligence service for the shaping of strategy and policy. Such a profession would rise out of the fine record of all the technical achievements of research up to the present, and it would strive for a still higher stature. A member, through special training, comparable with that of other professions and through capability, would occupy a post of "Director of Intelligence Services."

Management would look to the Director of Intelligence Services as someone who would develop information for alternative recommendations and who would outline the probable consequences of moving in any direction. His contribution would be measured by his ability to relate technical specifics to broad courses of action. With his ability he would commit himself to a scale of probabilities. He would not invent policy—although he might—but he would measure and help shape it. His chief executive officer would still be charged with final formulation of policy.

This function of policy formulation is sometimes carried on by foreward planning departments, but usually their executives do not have the broad technical background which can link the all-important fact to the all-important policy. It is also a function of government intelligence services.

What are some of the reasons supporting the need for such a position? One of the reasons is

## About the Author

*Marion Harper, Jr. (right) graduated from Yale Univ. (1938), a year later joined the research department of McCann-Erickson, rose to president at the age of 32 (1948), was made board chairman (1958), developed the agency into the second largest in the world changing its name to Interpublic, Inc. (1961), and is a continual contributor of ideas to the field of marketing and research.*


that management decision-making is becoming an increasingly complex process, with a multiplication of both knowns and unknowns.

The point need not be labored that there is now greater complexity in decision-making. But to take one example: Not many years ago, the problem of locating a plant was a matter of checking on shipping facilities, raw materials and labor supply. Now it's the subject of a whole catalog of factors and special studies. A set procedure can be followed to arrive at a solution.

On the other hand, there are many problems for which procedures or research data are not available. For these, management makes—or fails to make—judgments in virgin territory.

In general, it is true that good solutions depend on a large number of factors and on information —gathering from many different fields. They are, of course, complicated by new patterns of national and international competition, new forms of communications, the proliferation of new products and by the emergence of new market segments involving not only age, sex, national background and geography, but taste and individual psyschology. All these factors strain our present resources for research. They also point to some inherent limitations in information sources.

A second reason is that the term "informed decision" is a relative one. The expression is used almost as if there were two kinds of decisions—informed and uninformed — but obviously there are many different kinds of decisions, involving different proportions of information.

## Storage Bins of Data

No decision is wholly informed or wholly intuitive. By definition, any decision involving unknowns is a speculation. Management earns its authority as it takes steps to reduce speculation and deals with unknowns decisively and in good time. Business competition will always involve some of the strategy of poker, but, thanks to research, a manager can sometimes assess other hands at the table and predict the next play.

A third factor is that we are entering upon an Information Revolution in which the supply of data increases by geometric progression. The most successful decision-makers will be those who can best process, interpret and put facts to use. One of today's data processing machines can read or write at the rate of four full-length novels a second; its 640 cartridges hold 220 miles of magnetic tape. Machines such as this will be fed by a growing corps of government, business and scientific

researchers, stimulated by today's greater appetite for knowledge.

Production of the sheer mass of information will increase at a far higher rate than our Gross National Product or any other production growth. It is not unthinkable that some day the storage bins of farm surplus program may be needed to accommodate the outpouring of data at hand.

## Protection from the specialist

The key question then, is—how well will the mass of raw information be used? If a little learning is a dangerous thing, too much—that is, knowledge not put to use—can be a costly waste. Too many undigested facts can turn a man of action into a Hamlet, paralyzed by indecision. Like the raw materials of industry information must be converted into something. What is required is a discriminating selection which can deliver relevant data in a form usable at the echelon of decision. The research study that collects dust on shelves may very well have merit; the fault is a failure to relate its data to the problem it was designed to help solve.

Another reason for a Director of Intelligence Services is that, as information multiplies, management needs "protection" from the specialist. By the nature of his work, a manager is a generalist. He must, of course, have access to the knowledge and ideas of specialists to arrive at solutions that best serve his company's goals.

Specialists are necessary, even indispensable, but they have their shortcomings. Their view is often limited and their inclinations one-sided. Sometimes a specialist in a given field, through his traditional status, or the glamour of a new body of knowledge, or through personal influence, can exert undue influence on a company's destiny.

The specialist in the social sciences contributes best when his proposals are reviewed by a generalist. The reason is that in the social sciences, hardly anything is absolutely certain except the things we know anyway without the benefit of research. To fulfill such a coordinating role, a man must know what the various specialties are about. It is not necessary that he achieve the same competence as the specialist, but he should have a thorough understanding of each field.

A final reason: Too many people take part in decisions—and too many decision-makers use the wrong tools. Calling meetings is probably an impulse to assemble anyone who knows anything about the problem; so that people are brought in for their basic information—not necessarily for their abilities to purely deliberate on problems.

Very often, their information might be quite as well gathered and summarized by an able re-reporter, and in this way fewer people would be required to pass upon the problem. That is to say, everyday reporting, in some instances, is a better research tool than holding a meeting.

Another poor device for decision-making is the office routing system. Too many problems are forced upward through an organization—with the result that there is a misplacement of decision-making. Common examples are the evaluation of personnel, the selection of equipment or the purchase of technical services.

There is also too great a reliance on obsolete information that often goes under the venerable name of experience. The world today changes at such an accelerated speed that if a decision for 1963 or 1967 is made on the basis of experience in 1953 or 1957, or even 1960, it may prove embarrassing and costly.

## Our man in Sverdlovsk

Management decision-making is a continuous process. It is desirable that it be supported by a continuous program of research. Such a program will particularly benefit key decisions. If a manager is asked how many of the decisions he made in the last year affected the development of his company, he may say not more than five, or at the most, ten. If the manager tries to anticipate the five or 10 really critical decisions which he will be called upon to make during any succeeding year, he can then initiate a series of research projects which will facilitate and improve these decisions.

Today, much research is conducted on a "crisis" basis, usually to reverse a declining curve or to correct a negative development.

A director of Intelligence Services in business might well be the answer to all these problems. He would analyze and present a problem in much the same way as an intelligence adviser to the government. Assume, for example, the cloak-and-dagger hypothesis that an intelligence officer would have appraised the consequences of dropping an agent down near Sverdlovsk. The officer might have outlined the assets and liabilities of such a venture in relation to a Summit Conference. He might have argued, conceivably, that to dramatize Russia's vulnerability would exert pressure to win acceptance for the "open skies" proposal. And he might have weighed this possible advantage against the propaganda potential of the incident and the ex-

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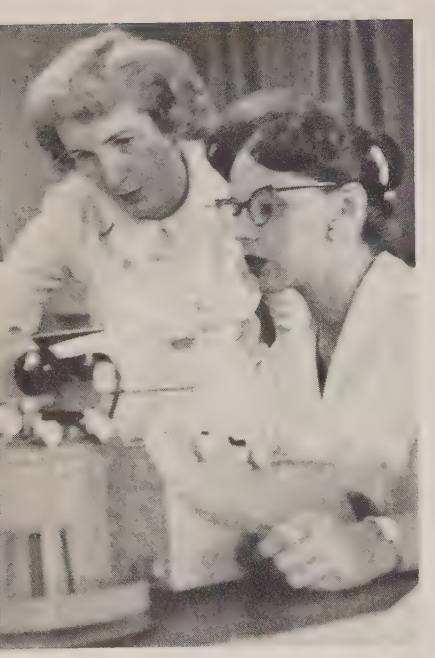
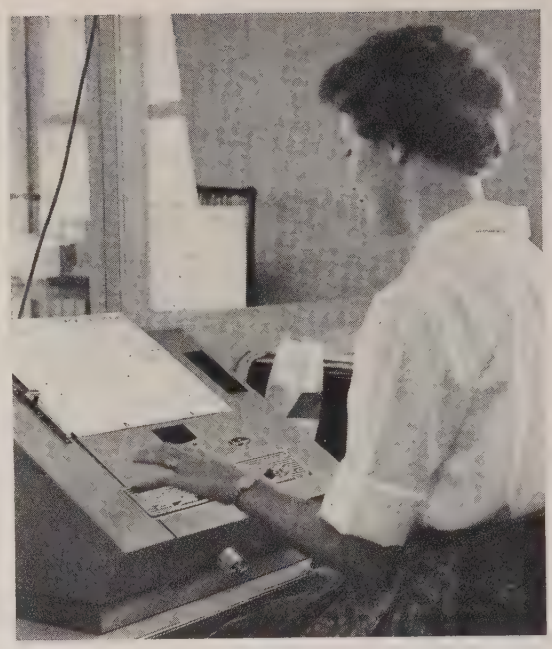


Initial step in Gerber's printing process is typing copy on the Justowriter.



A Foto-typist sets headlines on a VariType machine which also prepares display materials.

Copy and pictures are arrange frame and are then ready t

# Quality Office Printing Reflects the Gerber Image

A DETERMINED search, at Gerber Products Company, for what was said to be impossible high quality in office reproduction of routine forms and charts has ended successfully. Today, the famous Gerber baby food plant in Fremont, Michigan, produces practically all its black-and-white communication material in its own offices, meeting standards higher than are usually demanded from in-plant print shops. What's more, the installation will have paid for itself by its first birthday.

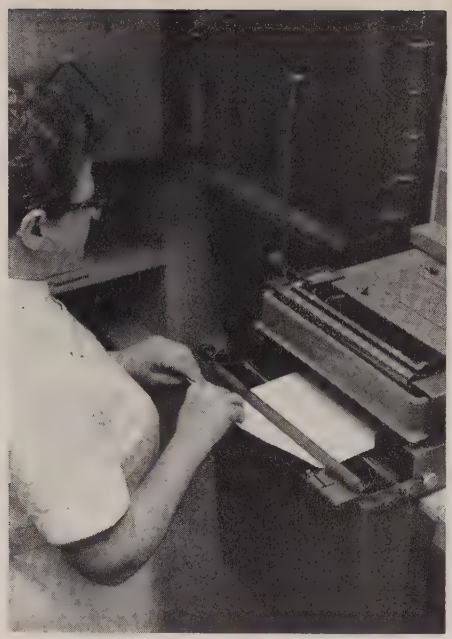
Until about a year ago Gerber was using its two offset duplicating machines primarily to print from masters made in outside shops. They used a large number of direct-image paper masters, typed by stenographers using a reproducible ribbon. They also used rented equipment for copying more elaborate original material onto paper masters for short runs.

"Quality in printed matter, as with everything else, is a religion to us," Richard Hastings, Gerber's general office manager, explains. "We're in the baby food business. Everyone who comes in contact with us must, in every impression, get the proper corporate image: a concern for cleanliness and neatness."

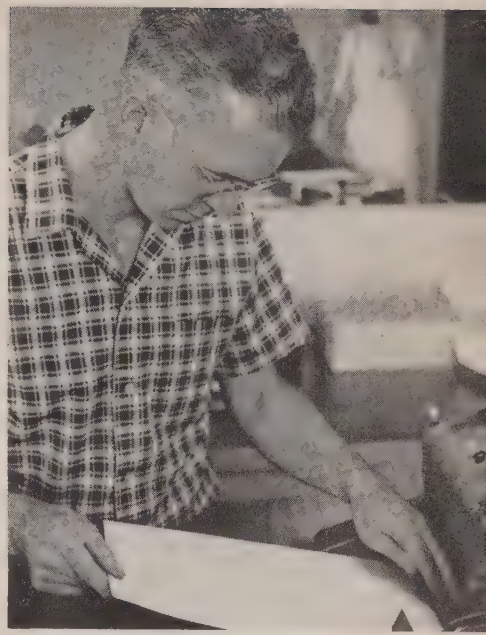
Gerber spends a great deal to see that their suppliers, dealers and consumers are all impressed with their emphasis on cleanliness. When a few thousand copies of a production form are run off, for use within the plant, they go to the men and women who actually process food. If that production form is sloppy, Gerber feels that it's bound to be reflected in these people's attitude and the work they turn out. Reproduction has to be so accurate that a form will be run over if one of the digits doesn't print sharply and cleanly.

Depending on masters from an outside source was not a headache-free answer. Gerber is 25 miles from the nearest trade shop, and somewhat at the mercy of the supplier. The cost, too, could run very high with the necessity of sending a man by car to deliver the original and wait while it was being processed.

ies, placed on the copying camera uced as desired offset master plate.



In the darkroom the Kodak Ektalith Model 20 is used to process transfer paper.



Final step in printing is to place master on the offset duplicator, ready for copying.

When a new method for making paper masters for the offset duplicating process (Ektalith) was announced, Hastings studied it, even visiting the nearest installation in the Detroit plant of an automobile manufacturer.

Tests convinced Hastings that Eastman Kodak Co.'s Ektalith Method could serve as the nucleus of a more efficient and economical reproduction system.

The immediate solution to Gerber's problem involved a modest investment, but no installation cost; they could buy a daylight-operated Kodak Ektalith Loader-Processor and a compact office copying camera. This system would produce high-quality paper offset masters in two minutes at a cost of some 28 cents for materials. The advantages would be: low initial capital investment, minimum space requirement, speed, economy and, more important, consistently pleasing quality. The Ektalith-produced masters would print in clear black and white and could be retouched, corrected or added to with any reproducing pen or pencil.

This was the simple, low-cost solution to their problem. What about Gerber's needs tomorrow, and tomorrow's costs? Was the minimum investment the wisest investment for Gerber?

After more investigation Hastings decided that instead of a small vertical office copy camera, he would order a full-size graphic arts darkroom-type horizontal camera, with vacuum back and accessory half-tone screen. The camera, and the darkroom built for it, were not necessary for paper master work, but they would help to make metal masters from Kodalith film negatives.

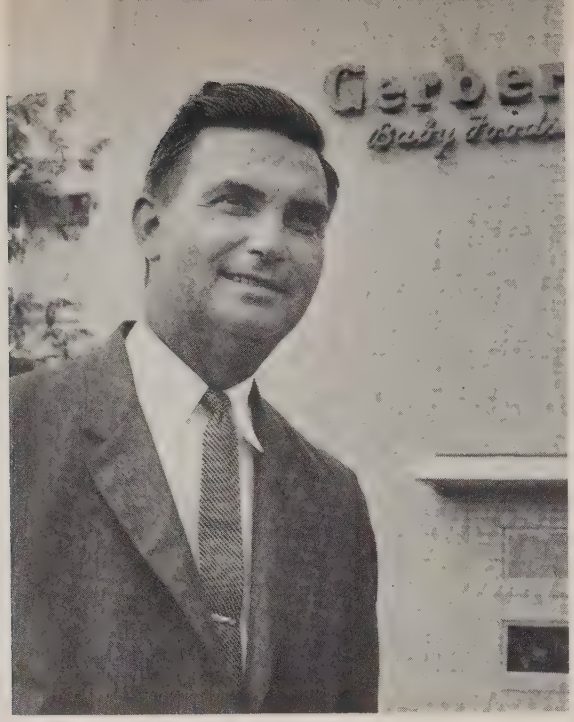
By building a darkroom Gerber was able to use the larger model Ektalith Processor. Like the smaller model it would transfer an image from nine by 14-inch transfer paper onto a 10 by 15-inch paper master. The large model, however, could handle transfer paper up to 12 by 18 inches, and transfer it onto 15 by 20-inch masters. At the moment Gerber had no offset press large enough to handle that—but there was always tomorrow.

## Get the picture

The darkroom reminded Hastings of another problem; the photography of people and products, always a problem at outlying plants. Somebody would call the editor of the company house magazine and say "There's a group of supermarket managers from Houston in the plant. Why don't we get a picture of them? They'll be here for another hour or so."

Somehow this opportunity usually occurred when the one local commercial photographer was off on another assignment. So Hastings ordered a four by five press camera and an enlarger for making eight by 10 prints.

Now the company was ready to look at the



Richard Hastings, general office manager, is responsible for Gerber's advanced printing methods.

problem of producing the Gerber News, which goes to all employes and to some customers. The News used a tabloid letter-press format and was produced outside the plant. It took so long from final copy to delivery time that when it reached the reader the "news" was no longer new. The tie-up was in office time—re-typing original copy for the printer, proofreading, and so on. The staff could never get out more than seven or eight issues a year.

Since Gerber was now equipped to run the News from office-made metal masters, Hastings decided to get equipment for setting type—a Vari-typer and a Justowriter. To keep up with the production capacity of this new processing equipment an A. B. Dick offset machine was added to supplement their two multiliths. All told, Gerber purchased $15,000 worth of equipment more than was necessary merely to switch to the Ektalith process. But it proved to be the wise investment Hastings had anticipated.

The Gerber News is now delivered in less than half the time from final copy to complete publication; Preparation work-time and delays are reduced; it contains more and better photographs; it comes out on time, 12 times a year, with news that is fresh and newsworthy; and readership has increased. Gerber has saved much more than money. But in the realm of cash, "We changed the format to fit our press capacity," Hastings points out, "so cost figures are not a direct comparison. You can look at it two ways. Each issue used to cost us approximately $2,000; a comparable issue, same size, same press run, under our present set-up costs about $1,100—a direct saving of $900 per issue. On the basis of eight issues per year that would be an annual saving of $7,200."

For example, in July 1960, a typical month, 7,000 copies of a 20-page issue, cost $923.26. That is a saving of about $1,075 on their previous per-issue cost. Now they are getting 12 issues a year, instead of seven or eight. Gerber never figured that skipping an issue was saving them any money; a good employe magazine is an investment, not an expense. Their typical current per-issue cost, on a full 12-issue year has represented a savings of better than $12,000 against a previous 12-issue budget.

That is not the only way the new Gerber print department is paying for itself. On any mechanical installation, a major cost is flexibility. The Justowriter, which was bought for setting body-type on the News, is also used for many other reproduction jobs. It is used for producing large quantities of personalized, individually-typed form letters at high speed.

Foto-type equipment, bought for setting Gerber News headlines, is also being used to produce colorful display charts on comparative sales. These are then photographed on 35mm Kodachrome to make slides for projection at sales meetings. They can also be copied onto Ektalith Transfer Paper, made into paper masters for the offset duplicating process, and run off. Each sales manager is able to take from the sales meeting a complete set of clean, crisp eight and one-half by eleven inch offset-duplicator copies of the charts.

## Really long runs

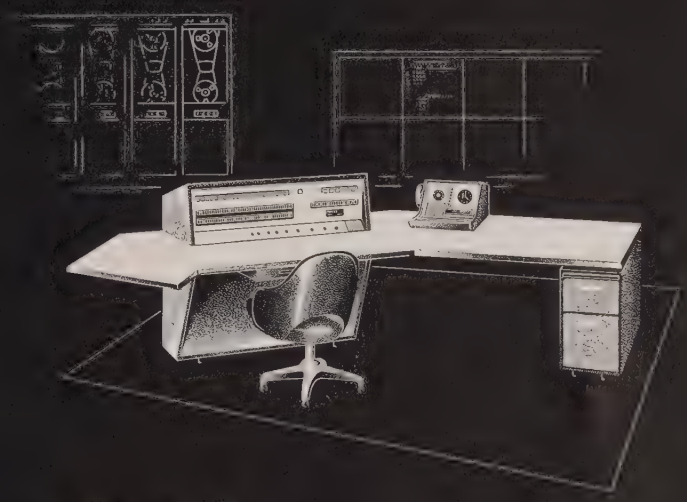
Hastings estimated that these paper masters, if made by the process previously used by Gerber, would have cost 68 cents as against the present cost of 55 cents, based on material costs of 28 cents and labor costs varying from 25 cents to 27 cents. The savings on metal masters from Kodalith film negatives, as against the former cost of having them done outside, is even greater — approximately 50 per cent.

There are many other savings. A run of 7,000 copies from one Ektalith-produced paper master is within reason, though Kodak claims only a conservative "often more than 2,000." There are also savings in almost never having to make a master over, because the process is so dependable.

The kind of savings Gerber is most concerned about, are the costs few people ever look at. Gerber saves a great deal of executive time by doing the work in its own office. There is purchasing costs for one thing—the time involved in getting quotations, issuing purchase orders, expediting,

*Continued on Page 34*

# Announcing a new ultra high-speed computer in the PHILCO 2000 series



## MODEL 212

## Faster than any other Data Processing System now installed

. . . even four times faster than previous Philco 2000 Systems

**PHILCO COMPUTER CENTER . . .** devoted exclusively to the development, engineering, production and marketing of Philco Computers

Philco 2000 Data Processing Systems have always been among the fastest and most reliable. Now, the new Model 212 Central Processor brings an entirely new concept in data processing speed, efficiency and flexibility to business, industry and science.

Advanced four-way processing, which permits simultaneous processing of four instructions; faster circuits, with diode-transistor logic; improved internal organization; all contribute to the tremendous speed of the 212 . . . four times faster than any previous model. For example, it can perform 639,000 additions in one second.

Faster running time, more effective use of memory and reduced programming time, result in the greatest possible economy in data processing.

The 212 Central Processor is fully compatible with all Philco 2000 systems. You can install a Philco 2000 system now, utilizing either the Model 210 or 211 central processor, and as your work load increases, replace the central processor with the Model 212, without reprogramming! Write today for complete information.

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For More Information Circle Reader Service Card No. 164

**A powerful data processing system provides the world's largest marketing research firm with speed and accuracy.**

# A. C. Nielsen— the Statistic Seekers

GROCERY STORE SHELVES can tell quite a story. A can of soup, for example, is a statistic, especially if the soup-maker is a client of A. C. Nielsen Company. The can becomes a single item in a mountain of facts which are funneled through a large data processing center located at Nielsen's international headquarters in Chicago.

Here the Retail Index Division of the world's largest marketing research firm gathers the information, organizes and analyzes it, and finally presents it to the client in understandable terms. The end result is a foundation—layed on accurate figures—upon which the manufacturer can base marketing judgements.

In the case of the soup manufacturer, he will learn how long the can of soup sat on the retailer's shelf before it was purchased; that it was sold because it was advertised on radio, television, in newspapers or magazines; or as a result of premiums or contests. He will also learn the amount of profit resulting from the eventual sale.

The importance which American management attaches to marketing research is indicated by the fact that 46 out of the top 50 advertisers in the United States are Nielsen clients.

With billions of dollars being spent on management decisions, which may be influenced by the results of this marketing research, Nielsen insists that computation and analysis of the data be completely accurate. More than 300 highly trained auditors spend their full time collecting marketing data on some 8,000 products in more than 6,000 stores throughout the United States. Currently the food stores report sheets consists of 248 pages on which data covering over 6,100 items is entered. This Food Index store sample alone furnishes data on the purchasing habits of over 800,000 families in the United States.

The company's Retail Index "assembly line" for data processing starts in the checking department, where information from sample stores covering the entire county is received and then distributed for initial processing and inspection.

The reports move to the key punch department and are transferred from field forms to punched cards. The company estimates that it now punches approximately 2½ million cards every two months for its Food, Drug and Camera Index audits. These audits are conducted by field personnel every 60 days in the same sample stores.

## The client's picture

After the data is punched into cards, it is machine processed, inspected for errors, tabulated and entered on summary cards via the IBM 650 computer. At the present time the company is using six 650 computer systems to handle its work load, along with a large number of 407 and 419 printers, 604 and 607 calculators and peripheral card sorters, collators, reproducing machines and key punches. The annual rental expenditure for data

An A. C. Nielsen auditor checks the shelves of a "sample" store. The current set of Nielsen food store report sheets consists of 248 pages on which data covering 6,100 items is entered.

processing equipment is currently running close to $1 million.

Nielsen's major job is reporting the movement of the manufacturer's goods from the retailer to the consumer—which is the ultimate goal of any advertising or promotional effort. The company also provides data on the movement of competitors' products as well, as this is vitally important to a client who wants a clear picture of his own marketing position.

In gathering data on volume, Nielsen reports sales to the consumer, value of such sales and volume of goods in stock in retailer's store. To relate the information recorded by the auditors to the national marketing picture, Nielsen compares its data to that secured from the census of business compiled by the U. S. Census Bureau.

## Ready-to-eat in pounds

A separate tabulating card is punched for each brand and each size carried by each of the 6,000 stores in the sample survey. These are identified by an item code. The projected data is accumulated —in terms of packages sold, value of same, packages in stock—into totals by "market" for each item separately. A market is a category for reporting purposes, and usually identifies a geographic area such as a county or "trading area." It can, however, relate to various sized stores or

Before data on field reports are punched into IBM cards, accuracy is verified in the room shown above. All information from sample stores for each listed item, column, totals and prices is checked.

distinguish between chain and independent retailers and special client-required markets, not corresponding to geographical area.

Sales and stocks, expressed in terms of number of packages of each size and brand is one form of data, but the client is also interested in information in terms of a common equivalent. To do this, for example, ready-to-eat cereals are shown in pounds. A pound factor for each size (item code) is stored into the memory of the computer system and applied to all unit data for that item. This process, termed "conversion" gives data in another significant area.

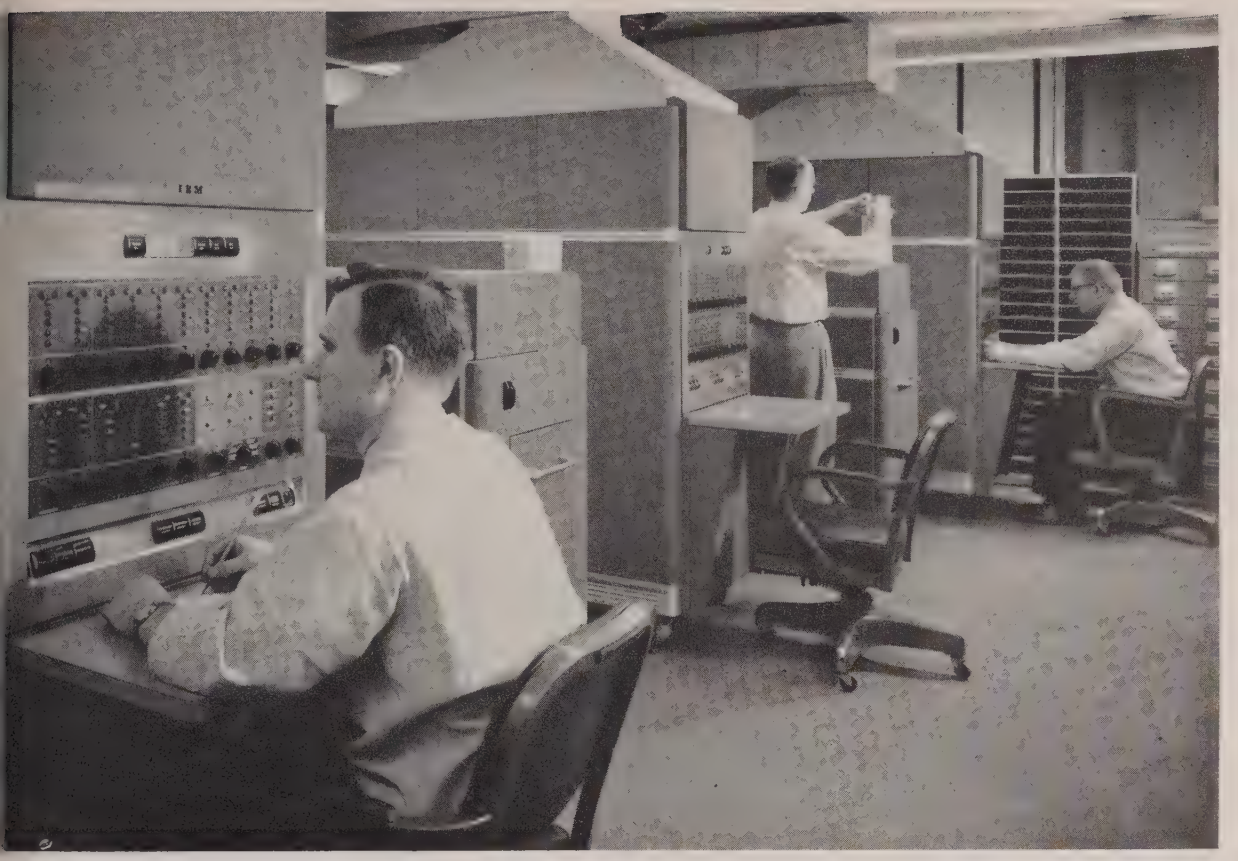
All of this volumetric information is of great importance to a client, but he has other requirements. He is in need of special information regarding exposure of product, effect of advertising, type of store for distribution, and effect of product change. Just one phase of the operation—the measurement of market tests—can produce a wide variety of statistical facts. These facts depend upon the nature of the product, the type of test and the client's desires.

For example, some of the categories are: (1) Consumer advertising—effect of changes in frequency, media, copy or commercial; (2) Store displays—type, sales per dollar expended, relative effectiveness in moving goods, best locations within stores; (3) Sampling—sales per dollar expended, best method; (4) Price—effect of changes in price to consumer, price to dealers, gross profit of dealers, percent of free goods or bonus offers to dealers, trade deals; and (5) Changes in product or package—shape or appearance, formula, contents in ounces or tablets.

## Unusual trends–usual patterns

The accumulation of the data is as important as its final analysis in the Retail Index Division. This accent on accuracy starts with the training of Nielsen's store auditors who must attend the company's field training school in Evanston, Ill., for six months before they are considered ready to conduct audits. The individual audits, representing raw input data are carefully inspected and checked before they are fed into the mainstream of machine processing to avoid a measurement error that could affect the national picture.

Because of the constant sorting, resorting and



A view of the computer room shows three of the IBM 650 computers which evaluate the statistics.

repetitious character of the tabulating and summarizing phases of the operation, the company, while utilizing the 650 systems, admits that these card systems are slow by today's standards. At the same time they appear to be completely adequate for the job at hand. However, with computers being constantly improved, the company does not discount the possibility of a change in the future. Nielsen specialists are studying the IBM 7070 and similar computers of other manufacturers. These machines hold some promise of doing the work faster with fewer card handlings and at the same time providing larger storage capacity, but the company wants to be "absolutely" sure before it takes any steps in a changeover. It was estimated that its Methods and Research department has already spent more than 32 man-years in evaluating the possibilities of electronic data processing machines. This department, in fact, is devoted exclusively to the study of new systems as well as programs designed to get more work from existing facilities.

After the data has been tabulated and summarized it is once more turned over to a group of experts in the computation and inspection department. This group is charged with the responsibility of examining it for possible errors and also for such characteristics as a new or unusual trend. They must detect any significant changes in the usual patterns.

## Data processing—1933

When their work is through, they turn the information over to the Presentation Analysis department where the data is prepared for practical use by client service executives who determine how best to employ it for the clients. These men also direct the preparation of charts, which will help to present the information in graphic form. The client service executives, the direct contact men, are next to receive the information. They study it thoroughly and are finally ready to interpret their findings for the executives of the client companies at regularly scheduled meetings.

A. C. Nielsen Co. has built its reputation on its ability to be right and completely accurate in its information for its clients. From the work of the auditor through the programming of its data processing equipment, the company requires per-

fection. It has been using IBM equipment for data processing since 1933. At that time, although the use of business automation was in its infancy, Arthur C. Nielsen, the company's founder, recognized that market research could not be handled manually. Equipment, through the years, has taken over many of the tedious manual and semi-manual chores. As an example, the final report book tables, which once were laboriously calculated and typed by hand, are now tabulated and printed out by the IBM 407's. And more jobs can be turned over to automatic processing.

The company recognizes that machines and methods which were up to date six years ago or even a year ago may now be obsolete. Alert management does not retail old methods unless critical re-evaluation indicates that nothing better is available. A. C. Nielsen requires that its data processing equipment provides a reduction in operating costs, affords an earlier delivery of data to the client and minimizes the need for checking and rechecking the mechanical errors which could affect the accuracy of the information it prepares for its clients. ■

## Nielsen's Audimeter—Core of the Broadcast Division

Nielsen "Ratings," furnished by the Broadcast Division, are as much a part of television and radio today as the programs they report. The company operates this division much as it does the Retail Index Division, except that in the place of the human auditors, an electronic device, the "Audimeter," codes an accurate record for every minute of total TV and radio set usage in each house in the sample.

The data is coded on continuous 16 mm film which can be mailed by the set owners to the Nielsen Co. For each minute, the film record shows whether the receiver is "on" or "off"—and if it is "on," it shows what channel or station is tuned in.

Following the arrival of the film at Nielsen headquarters, there are five basic steps:

(1) Every film record is electronically inspected by a Nielsen-designed Inspection Computer (shown in top picture to the right) to ascertain whether it meets certain high standards of accuracy. The Inspection Computer does this at the rate of 1000 minute marks on the film per second, and it prints out the results of its inspection.

(2) Next the film records are decoded and converted to tabulating cards in a battery of Nielsen-designed Automatic Film Decoders.

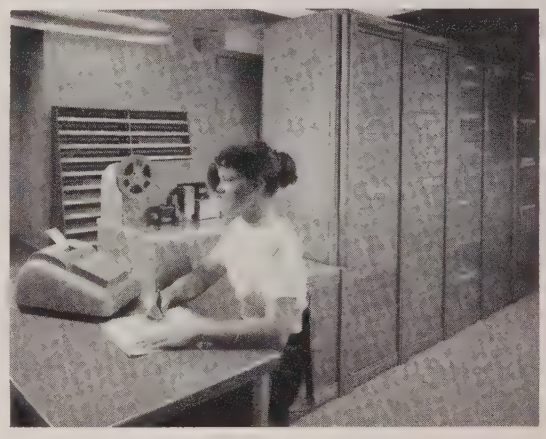
(3) The data, now on tab cards, is sorted, tabulated and computed in a complex system that involves several hundred major operations.

(4) Copy for the final reports is then prepared automatically on IBM 407 machines, each of which does the work of about 100 typists. Plates are then made by a Xerox process and Multilith machines are used to produce enough report copies to serve all clients.

(5) The finished reports are then studied by client service analysts who, in close collaboration with Nielsen client service executives, prepare for each client a graphic presentation showing those developments which appear to be significant or helpful to the client.

Thanks to automatic data processing, Nielsen can sort and resort cards for computer tabulation to learn rural and urban facts, general viewing habits, average audiences for programs, share of audience, cost per 1,000 homes reached, minute-by-minute audience, audience by location, frequency of viewing, number of broadcasts received in homes and audience composition (number, age and sex of viewers).

This research data, presented to advertising sponsors and the broadcasting companies themselves, can affect policy decisions on expenditures and sales ranging from advertising and sales promotion to distribution and production facilities.




The Mailable Audimeter records, on film, the television habits in the sample home. Participant families receive a film magazine in the mail. When the magazine is inserted in the Audimeter on top of the television set, quarters are ejected as payment for participating in the survey. When the film is full the magazine is mailed back to Nielsen's for processing and a new film cartridge placed back in the Audimeter. Nielsen's computer checks every minute of each bi-weekly film record to determine the accuracy of its timing, the identification of stations, and the number of minutes of daily use on each receiver in the home—all information shown on the film record.

# filing Flexibility unlimited!

***Tab Products—and ONLY Tab Products—gives you FIFTY-SIX STANDARD MODELS of Open Reference Files for punched cards!***

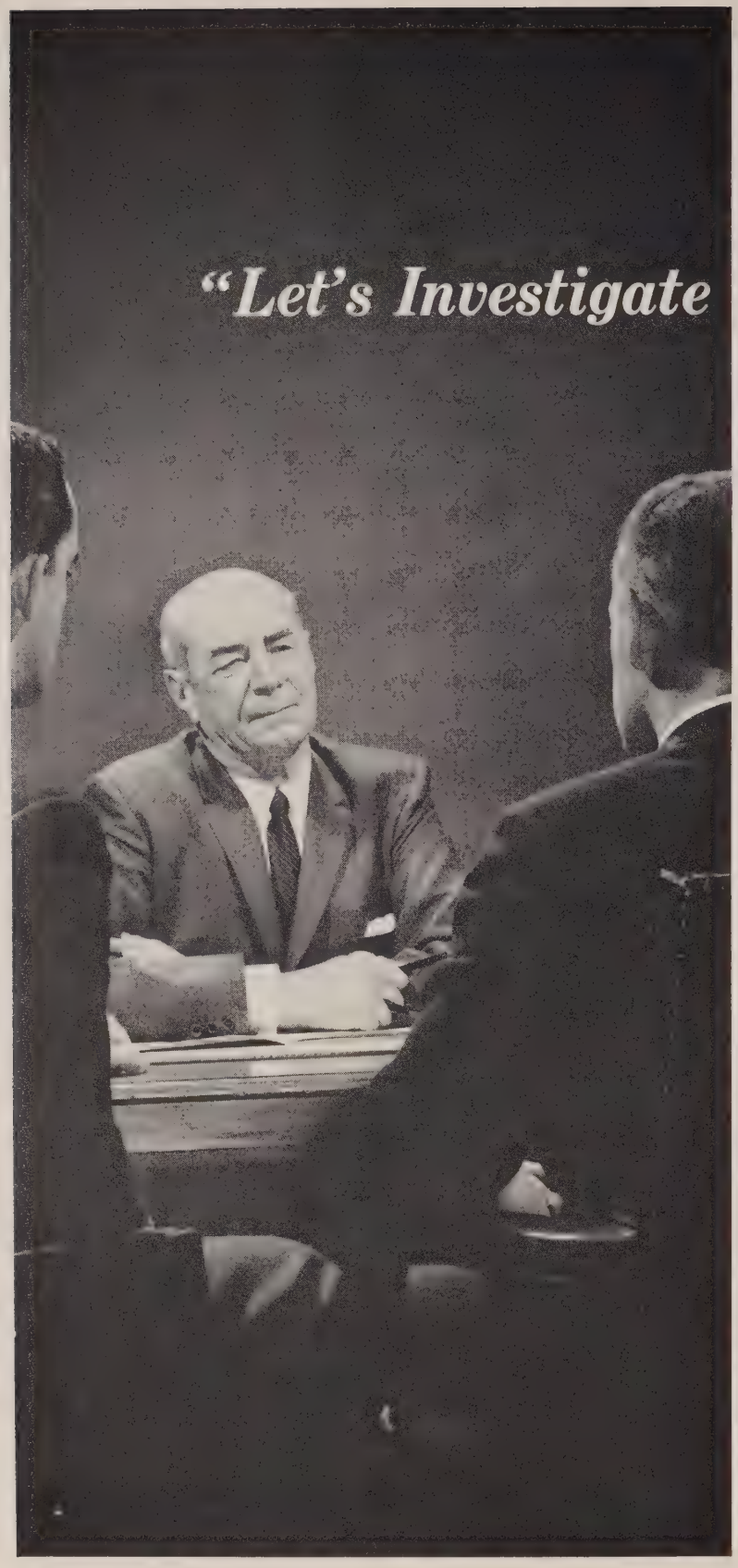
***Photo shows 68-inch wide extra-capacity reference file with new style horizontal trays and 20-inch wide work board.***

Horizontal and vertical files are available in sitting and standing height, in 37½ inch, 60 inch, and 68 inch widths, with a choice of trays and compartments. Unparalleled flexibility is just ONE advantage of truly functional Tab Products reference files.

*Ask your local Tab Products Representative for FREE TAB DEPARTMENT PLANNING KIT or write to us at 995 Market Street, San Francisco 3.*

**TAB**
PRODUCTS CO.

For More Information Circle Reader Service Card No. 166



# "Let's Investigate National*

## ...they have 77 years of business know-how!"

■ National offers the most complete line of original-entry, data recording machines: cash receipting, listing, window posting, and accounting. Each machine integrates accounting functions and provides proven input media — tapes or cards — for electronic data processing systems.

■ National offers a full range of electronic data processing systems: small, medium, and large-scale computers, plus a network of processing centers.

■ National offers broad system coverage . . . over 4,000 trained system consultants located in over 500 principal cities in the United States.

**ALL THE WAY from**

Raytheon's general manager, John T. Thompson; Leo A. Love, vice president and controller for Western Union; and Richard L. Fitzpatrick, vice president of sales for American Airlines look over communications facilities utilized by Raytheon's Unimarket system.

## Unimarket

*Continued from Page 17*

Airlines maintained that the United States was only five hours wide and two hours deep. More, specifically, they made a complete evaluation of the shipping schedules and costs from Westwood to each franchised distributor on the basis of the one shipping point. Coupled with the steps in the system, the air freight acceptance balanced the place-utility formula.

A test transmission of orders was run on December 3, 1959. Orders were transmitted and received in Los Angeles, Chicago, and Dallas, all the same day.

General Manager Thompson cited, "This demonstration conclusively proved that the combination of a communications system integrated with order processing and the utilization of air freight provided the type of service which we had hoped to provide our customer." ■

## Gerber

*Continued from Page 26*

handling orders for corrections or re-makes.

Then there is accounting time: not just on accounts payable, but on figuring costs. "We know from figures in our files," Hastings says, "exactly what any proposed job will cost and we know right away if we can afford to go ahead on it."

Production time, too, is carefully assessed at Gerber. This has resulted in a rather startling change. Hastings issued orders that the office would no longer use any direct-image masters for offset. On really long runs (some office forms go up to 50,000 copies) they would continue to use metal masters. On all other jobs, no matter how small a run or how unimportant, the master would be made by the Ektalith process.

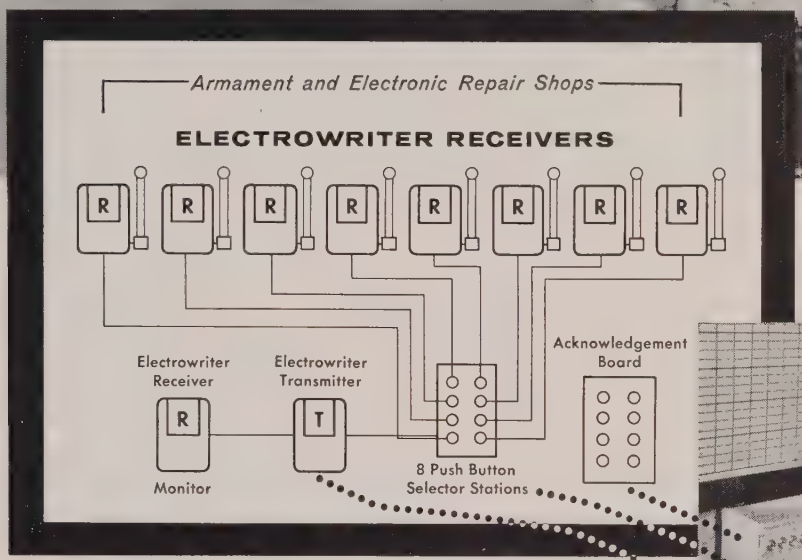
## Cost of handling smudges

Hastings backed up this decision with carefully-computed cost figures. The direct-image master is typed directly on the master with reproducible typewriter-ribbon; the material cost is about half of the material cost involved in copying the same original material onto a sheet of Ektalith Transfer Paper and then transferring it to a paper master. Hastings was able to prove that costs for the direct-image master within his own organization were higher.

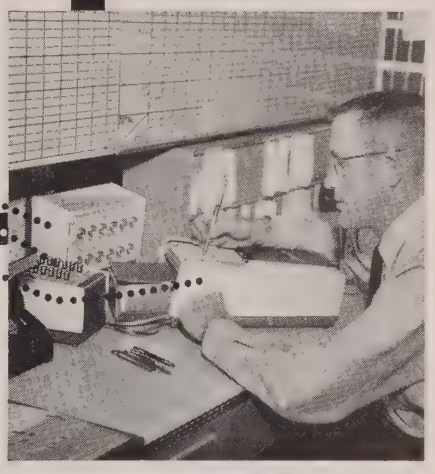
The average typist can type twice as fast on paper as she does on an offset master. The mere knowledge that she must avoid mistakes on the master slows her down. With typing costs at Gerber running from three to three and one half cents per minute, a few extra minutes spent in typing can quickly wipe out any cost differential in materials. Cost of handling typing error and smudges in this method is also high.

"The greatest waste in office operation of offset machines," Hastings says, "is in trying to make a plate run that should be discarded. You get a master on which you need 100 copies, and the operator may run 40 or 50 copies before he decides that this is not a good master and can't be run."

That's why, at Gerber, any material to be run by paper master on offset is first typed on white paper. After proofreading and correction, it goes to the copy camera. Here it is copied and transferred by the Ektalith method to a master which can be placed on the offset machine two minutes later, to produce hundreds — or thousands — of clean, bright, neat copies. Hastings knows he can guarantee speed and quality; his reproduction department is now producing well over 1,000 Ektalith-transferred masters a month. ■


PHOTOS COURTESY
UNITED STATES AIR FORCE

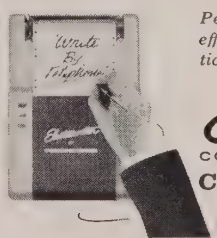


Dispatcher

# Here's how ADC *Says it in writing* AT HAMILTON AIR FORCE BASE

The Air Defense Command, Hamilton Air Force Base, cuts manpower and time in processing vital aircraft maintenance instructions through the use of Electrowriter Systems. Writing directly on an Electrowriter Transmitter, Central Maintenance transmits a description of the maintenance requested by an incoming aircraft. A pushbutton selector chooses the stations to receive the message. At Hamilton, there are nine receiving stations for Field Maintenance and eight receiving stations for Armament and Electronic services. Each shop concerned with the maintenance required receives the instructions instantaneously, *as they are written.*

The Electrowriter System combines the speed of the telephone voice with the accuracy of written instructions. Only one writing of the instructions is needed throughout the entire system. Speed and accuracy is increased and manpower is saved.




*Perhaps Electrowriter can bring added efficiency and speed to your communication system. Write for full information.*

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COMMUNICATION SYSTEMS BY
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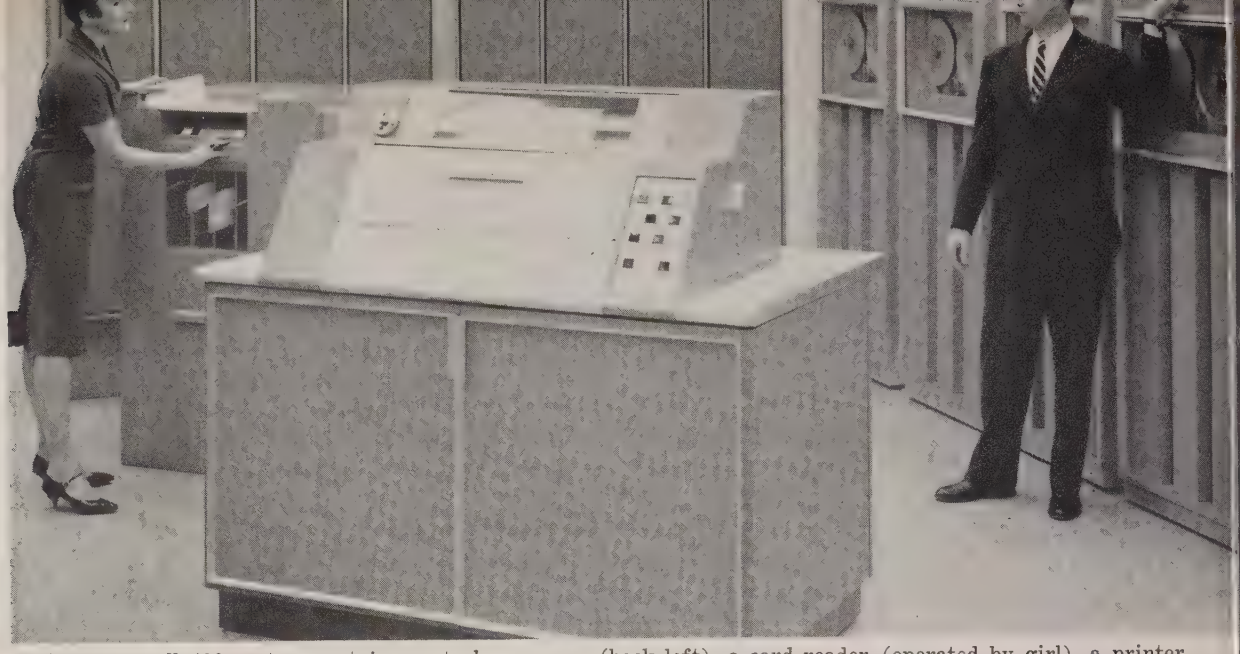


Basic Honeywell 400 system contains central processor (back left), a card reader (operated by girl), a printer (foreground), tape units (right) and the new independent console (not shown).

# *Honeywell Doubles Power of 400*

## News Feature

DESIGN CHANGES in the Minneapolis-Honeywell 400 computer will approximately double the machine's capability. The price of the basic system remains unchanged.

At the same time the company announced the availability, on an optional basis, of a new off-line printing configuration for use as additional equipment with the Honeywell 400.

The new specifications give the system an internal speed of about 10,000 three-address operations per second, or the equivalent of 20,000 one-address operations per second. The computer's central processor can handle about 200,000 decimal digits per second.

As a result of changes in the system's memory and logical design, Honeywell 400 purchasers (including all those who have ordered the computer up to this time) should get up to twice as much data processing per dollar spent as originally anticipated, and at no extra cost. Monthly rental for the basic system remains at $8,660 per month. The sale price is about $390,000. Deliveries of the Honeywell will begin this Fall.

The basic Honeywell 400 model includes a central processor, four high speed magnetic tape units, a new independent console with keyboard and printer, a high speed printer and a card reader.

Flexibility of the system has been extended by another optional feature, provision for use of up to eight high speed magnetic tape units (four in addition to those provided with the basic model), card punches and paper tape equipment.

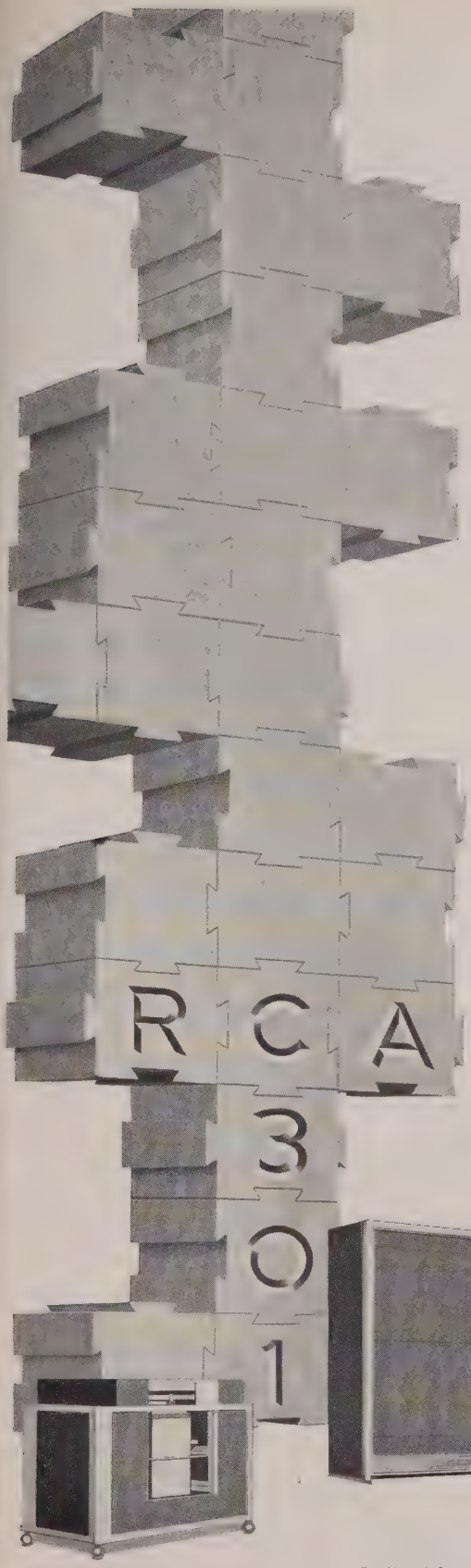
The new off-line printing unit feature is a complete package, including a printer with 120 fixed printing positions, electronic control equipment and a high speed magnetic tape unit. It operates at 900 lines a minute, produces clean carbons and is of rugged construction, the company said. The monthly rental for this equipment is $3,500.

The Honeywell 400 is compatible with the larger Honeywell 800 system so that growing companies can expand their data processing operations.

Core memory capacity of the 400's basic central processor is 1,024 words of 48 bits each. Additional memory units may be added. All information passing through the central processor is checked internally as it is read from or written on magnetic tape. The system can perform both reading and writing operations simultaneously.

The transfer rate of information to or from the magnetic tapes is at the rate of 64,000 characters or 96,000 decimal digits a second. Orthotronic Control, a special feature on Honeywell EDP systems, automatically detects and corrects errors or damage to information recorded on the magnetic tapes. The reader handles 650 cards per minute.

The new console is equipped with breakpoint switches and a printer and keyboard for both input and output operations.




# *Start small, then...*

# build it as big as you like!

For as little as $3,315 a month, the compact RCA 301 is the only solid state, full-range Electronic Data Processing System in this price range that makes it possible to employ the ultra sophisticated techniques of much larger and more costly systems. And, like all RCA Electronic Data Processing Systems, expansion of capacity and usefulness can be achieved by adding peripheral equipment or combining the RCA 301 with the compatible RCA 501 or RCA 601.

The RCA 301 user with modest data processing volume can start with only the input/output equipment, storage devices and simultaneity control required for the initial application.

As the workload grows you can add any combination of punched card, paper tape or magnetic tape input/output, and disc file or magnetic tape storage, as well as magnetic character sorter-readers. Optional tape speeds are available to increase magnetic tape speed almost 5 times and paper tape speed 5 or 10 times.

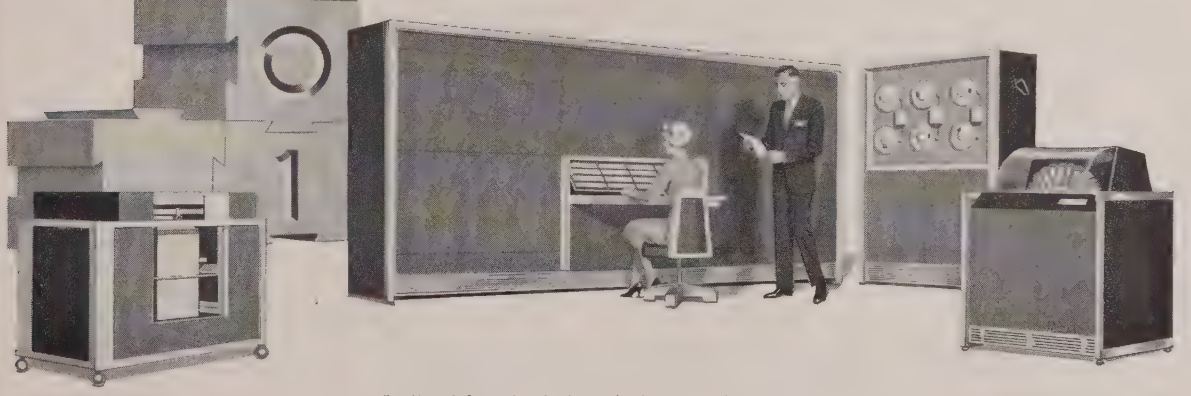
For full information, write Electronic Data Processing Division, Radio Corporation of America, Camden 8, N.J.

**RCA ELECTRONIC DATA PROCESSING SYSTEMS**

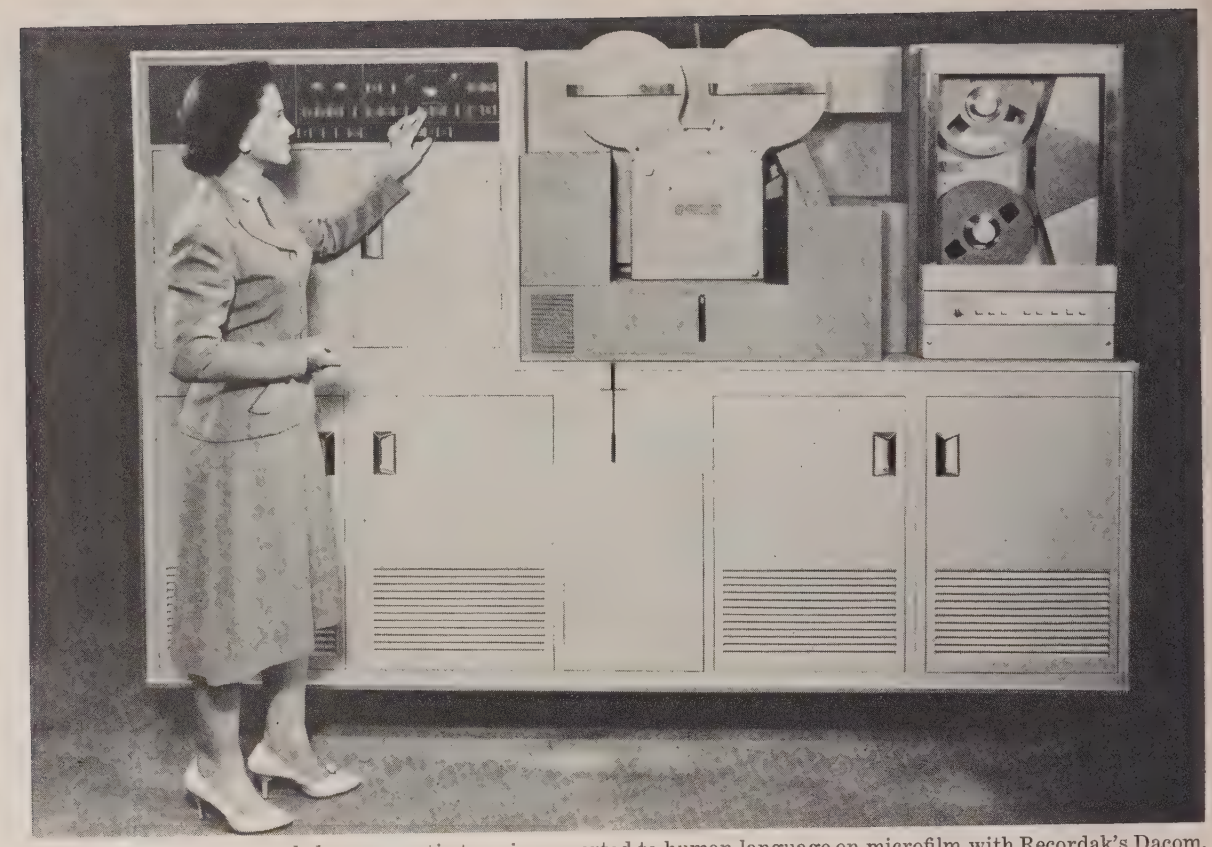
RCA®

The Most Trusted Name in Electronics

RADIO CORPORATION OF AMERICA



For More Information Circle Reader Service Card No. 168



Computer language recorded on magnetic tape is converted to human language on microfilm with Recordak's Dacom.

# Microfilm Linked To Computer Output

## Product Preview

RECORDAK's Dacom (Datascope Computer Output Microfilmer) developed by the Eastman Kodak Company will convert computing machine language recorded on magnetic tape to human language on microfilm, at speeds compatible with the computer itself. This unit is said by the company to be a breakthrough in the computer field, by linking the speed of photographic recording to the speed of computer output.

The unit can operate on-line with any make of on-line tape oriented computer. The microfilming unit can record a page of 64 lines, 126 characters per line, in half a second. The average recording rate is over 20,000 characters per second.

Van B. Phillips, vice president of sales and advertising for Recordak, at the special preview of Dacom, said, "Dacom will eliminate the bottleneck of conventional mechanical printout. In addition, paper facsimile copies, as needed, can be produced directly from the compact microfilm record.

Through programming and individual format, the Dacom unit converts computer bits into the English language by means of a cathode ray tube, similar to a television tube receiver. Through a split optical system, Dacom photographs computer output data simultaneously with the desired background format resulting in an optically combined microfilm image. The relatively high speed of the microfilming and conversion of Dacom allows rapid output without a mass of printout forms.

Estimates show 98 percent less filing space is needed with microfilming output. The figure is based on the fact that a single 100 foot magazine of 16mm microfilm can contain the information recorded on as many as eight 2400 reels of magnetic tape. Through a variety of microfilm files and readers rapid data access and retrieval is possible. To insure accessibility, film image coding techniques can be provided. With microfilm readers computer records are ready for quick reference. Photo-duplication techniques can provide sharp, clear and instantaneous copies of filed information. Circle No. 104


# The Copyflo® 1824 Printer, using ordinary paper, cuts costs of engineering-drawing reproduction

Here's a remarkable machine that sharply reduces the cost of engineering-drawing reproduction because it *uses ordinary, inexpensive paper.*

The XeroX® Copyflo® 1824 printer, which requires no exposure or other adjustment, reproduces from a microfilm aperture card, making dry, positive, 18″ x 24″ prints—or smaller—at extremely low cost. It also copies onto vellum or offset paper masters.

Operation is automatic. Prints ready for immediate use emerge as fast as four a minute.

The quality of reproduction is superb. Images are sharp black-on-white and won't rub off. There is no odor, no waste, and the finished print may be written on with pen or pencil.

Regardless of your engineering-drawing-reproduction needs, you can now enjoy the tremendous savings in time, money, space, and materials of your own unitized microfilm system.

Formerly, such economies required a substantial reproduction need. Today, however, the Copyflo 1824 printer offers the same proportionate benefit to small-volume users as to large. No need now for vast files of engineering drawings. Microfilm aperture cards require only a fraction of the storage space required for other reproducibles. No more costly waiting for prints, which—made by a Copyflo 1824 printer—are so inexpensive your engineers can discard them after use.

Write today for our free 1824 booklet giving the full benefits you can expect from Copyflo 1824 printer. HALOID XEROX INC., Dept. 61-176X Rochester 3, N. Y. Branch offices in principal U. S. and Canadian cities. Overseas: Rank-Xerox Ltd., London.

**HALOID XEROX®**

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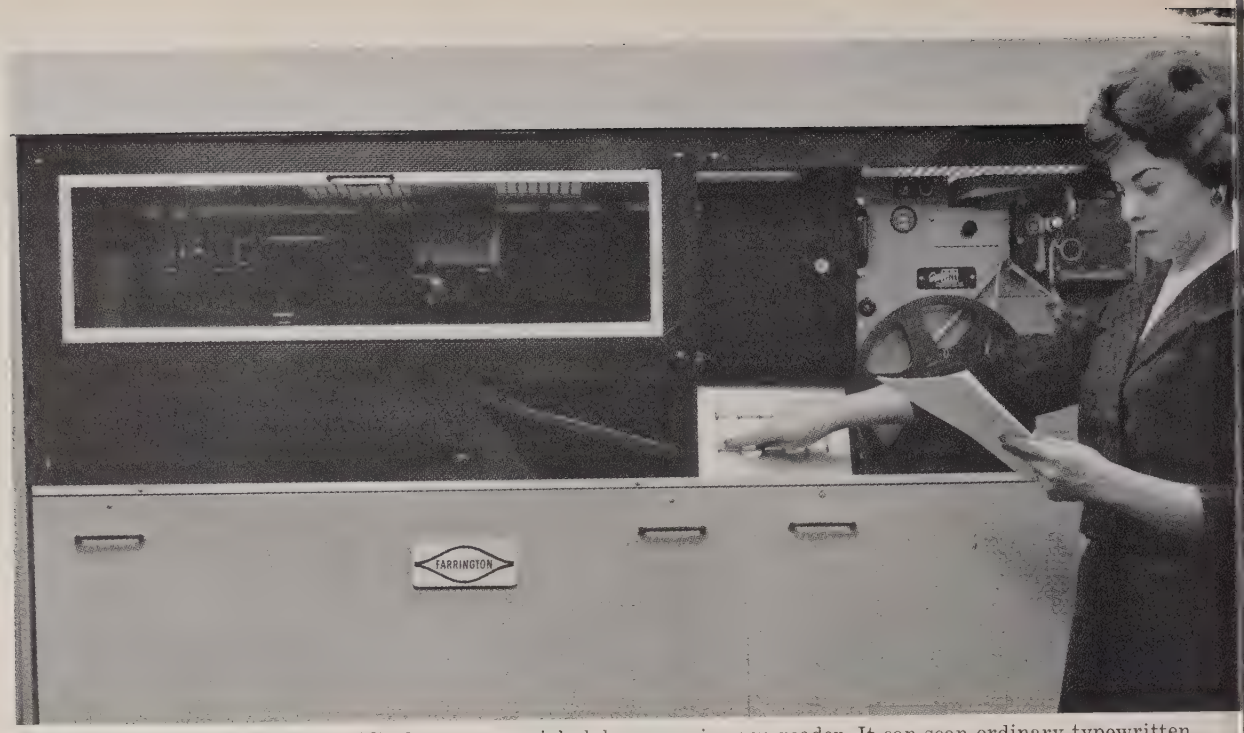



This electronic scanner is the world's first commercial alpha-numeric page reader. It can scan ordinary typewritten documents and instantaneously translate what it has read into machine language for processing.

# *First Alpha-Numeric Page Reader Developed*

## Product Preview

DEVELOPMENT of the world's first alpha-numeric, transistorized, commercial page reader for data processing has been announced by Farrington Manufacturing Co. The initial advanced Farrington Optical Scanner is now coming off the production line of Farrington's subsidiary, Intelligent Machines Research Corp., Alexandria, Va.

The optical scanner is designed to close the gap of manual translation of raw data into business machine language suitable for high speed computers and automated systems (see Management and BUSINESS AUTOMATION, Sept. 1960).

Farrington's page reader scans ordinary business documents and instantaneously translates the information into punched paper tape at the rate of 240 characters—letters of the alphabet, numbers and punctuation marks per second.

Although the current scanner is an outgrowth of an experimental machine built for the U. S. Air Force, two major commercial industries are already planning on utilizing the equipment—utility and insurance firms. In addition, a leading publisher, Time, Inc., will shortly install in Chicago two commercial alpha-numeric page readers to speed up its subscription fulfillment service.

Farrington Optical Scanners are both for lease and for sale. Price of the readers will range from $95,000 to $175,000; basic machines range upwards from $60,000. Model 1P4P, an upper case alpha-numeric unit sells for $123,000 and rents for five years at $2,920 a month.

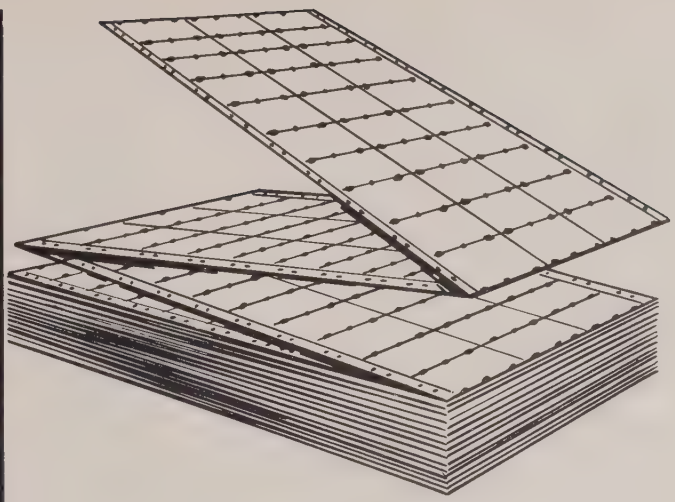
Model 1P5P reads Farrington type style, upper and lower case alphabetic characters, common punctuation marks and numeric characters. It has the ability to read full 8½ by 11 inch pages of typewritten information, single or double-spaced, or to scan entire pages in search of particular information, then translating it into a five or six-level code on punched paper tape at the rate of two and one-half lines per second. It has checking features and automatic compensation for misalignment caused by faulty typewriters.

Among the potential applications are systems in such areas as communications, transmission, typesetting, data reduction, catalog-indexing and language translation. Circle No. 117

# DIRECT MAIL AUTOMATION

## . . . through your tab or computer system

New continuous form addressing labels developed by Eureka are the key to easy, economical addressing on data processing equipment . . . and they can be applied automatically.

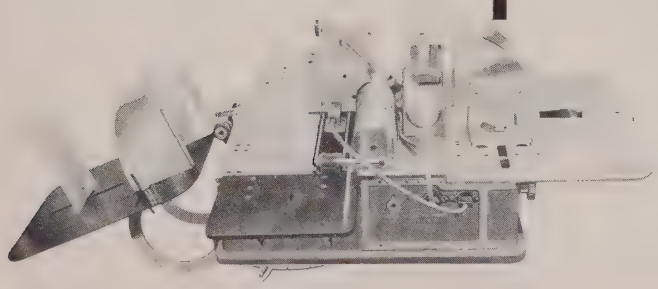


These labels open the door to tremendous savings in your mailing department—yet offer a versatility for direct mail campaigns seldom achieved before. Utilizing either punched cards or tape, the printing of your mailing list is performed as a by-product of your electronic accounting equipment. This will eliminate inadequate addressing systems, lower mailing costs, but still provide for complete control and flexibility over the mailing list and program.

The labels are in continuous form, one to four columns wide, with deep rule perforations for easy removal of the marginal feed after printing.

Once the labels are printed, the Eureka Mail Aid Applicator will affix them to your mailing pieces at speeds up to 13,000 labels per hour. This program will provide your mailing department with the speed, selectivity, and economy never before attainable in the addressing of your company's direct mail.

May we give you further details as to how this all-new approach to an age-old problem will benefit you?



EUREKA®

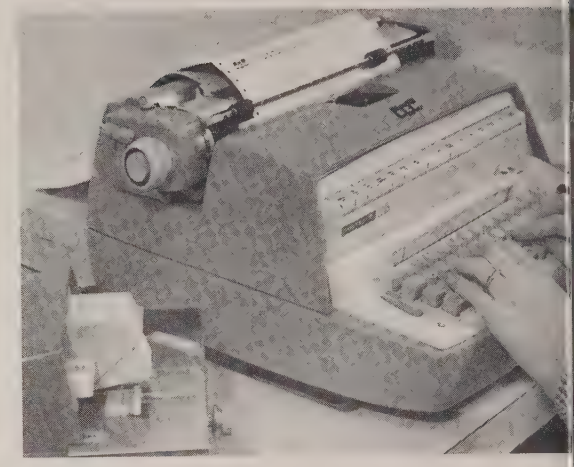
**EUREKA SPECIALTY PRINTING COMPANY**

**SCRANTON 1, PENNSYLVANIA**

® T. M. REG. U.S. PAT. OFF. & CANADA
"MAIL AID" REG. U.S. PAT. OFF.

For More Information Circle Reader Service Card No. 170

Emerson E. Mead, president of Smith-Corona Marchant Inc., shows operator (sitting at SCM's new Typetronic 6615 electronic computer with typewriter input-output) the plastic program card used for automatic programming control.



Typetronic 2215 is SCM's new electronic business document writing system.

# *Smith-Corona Marchant Enters EDP Field*

SMITH-CORONA MARCHANT has announced its entry into the data processing field with two fully transistorized electronic machines: Typetronic 2215, an automatic writing system; and Typetronic 6615, a computer with typewriter input-output.

The 2215 is a business document writing system consisting of an electric typewriter with electronic components, which automatically process forms upon activation by punched tape or edge punched cards rather than by manual typing. The 2215 features processing speed, accuracy and quiet operation at the rate of 100 words per minute. Variable data is entered manually through the typewriter keyboard. It also includes one or two punches which automatically store data on edge punched cards or punched tape for future automatic processing. The punch is also capable of making its own feed holes in cards.

The Typetronic 6615 computer with a typewriter input-output can handle data at high speeds and simplify the preparation of business forms requiring calculation. An electric typewriter with 15 inch carriage is connected to a transistorized arithmetic unit which is capable of computing, storing and printing information. As the operator prepares a business form, the computing unit does the necessary calculations and prints the results automatically. Its principal advantages are flexibility and speed of handling even intricate computations. Computation and information storage is made by a special type of magnetic disc with nine recording heads. Entries may be made or transferred to storage points simultaneously.

The 6615 requires no air conditioning or special current. The output rate of the typewriter is approximately ten characters per second. System controls and signals are located within the keyboard area. A plastic (mylar) program card, 16 by 5½ inches, is used for automatic programming control.

The Typetronic 2215 and 6615 units are compact work stations, requiring a minimum of floor space. A console desk houses the electronic system and punches, providing a sizable working surface for the operator. The Typetronic equipment will range in price from $4,000 to $9,000 depending on the needs of the specific installation. It is also available on a lease basis.

President Emerson E. Mead of SCM stated, "The punch is manufactured at our Kleinschmidt telecommunications factory, the Smith-Corona plant makes the typewriter component, the photoelectric reader, electronic system and final assembly are made at Data Processing System's Marchant plant." Circle No. 101

Now...IBM Control Panels

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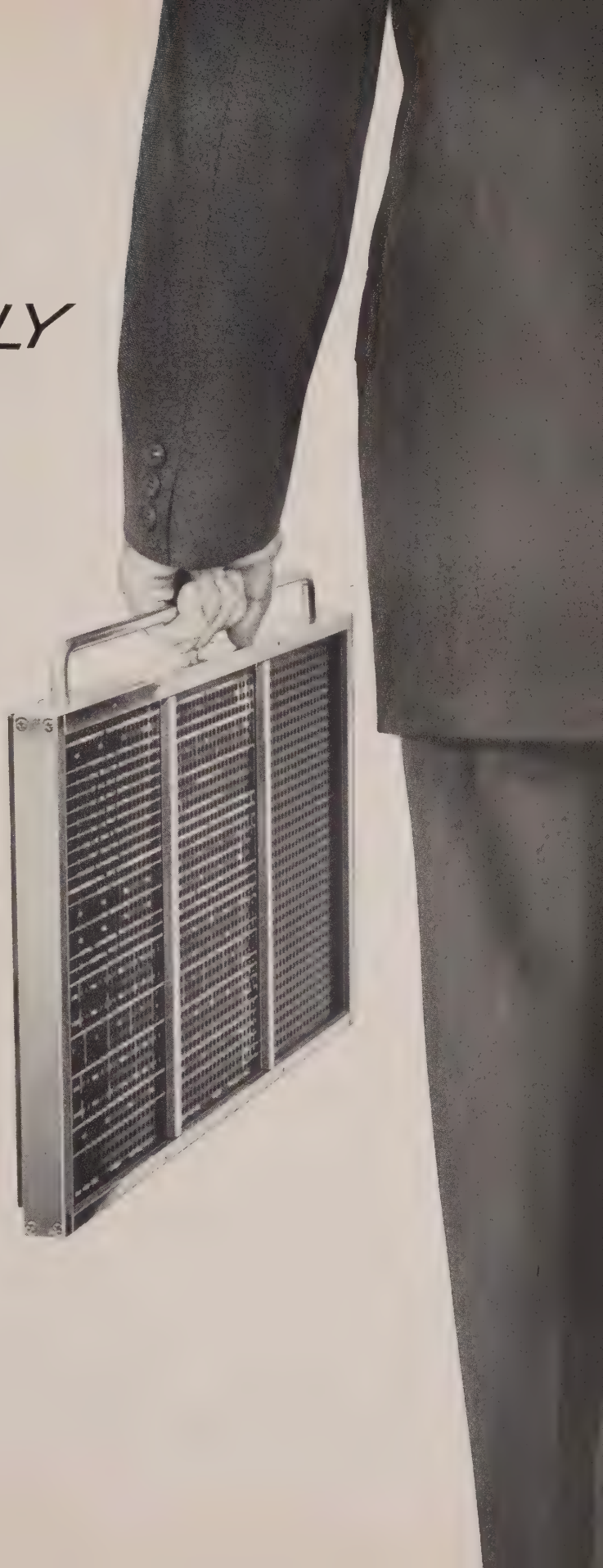

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DATA PROCESSING

The Burroughs B 5000 transistorized computer system is comprised of: tape units (on either side); (next on left back) memory modules and I/O channels; (in front) card punch serving 800 cpm card reader; (to right) message printer/keyboard, console; (back right of center) processor; 200 cpm program card reader (in front); and digital plotter (in front of right bank of tape units).

# Burroughs B 5000 Is Problem Oriented

## Product Preview

BURROUGHS CORP. has announced the B 5000 Information Processing System, an advanced computing package and "the first computer designed for automatic programming."

The B 5000 is a medium-to-large scale, general purpose system with a price tag ranging from $12,000 to $40,000 per month; a typical tape system running around $18,000 per month. The system may include one or two independent Processors, up to eight 4,096 core Memory Modules, and one or two fast-access 32,768-word drums. A maximum of 26 input/output units—including 16 magnetic tape units, plus card punch and card readers, line printers, message printer/keyboard, and digital plotter—are linked to core memory through up to four Input/Output (I/O) Channels.

Burroughs estimates that a typical business system might include one Processor, two Memory Modules, two I/O Channels, one drum, plus input/output units. Delivery is quoted as up to 18 months after receipt of the order.

A Master Control Program (MCP) provides centralized automatic control of the system operation. MCP consists of a set of routines which are prestored on the magnetic drum by the manufacturer and which automatically schedule the day's workload according to predesignated priorities. It allocates memory, calls in program segments, controls multi- and parallel processing, designates input/output units and controls I/O operations.

Through an Environment Control Routine and a comprehensive "interrupt" system, the MCP maintains constant surveillance over the activity of the entire system. Notifying the Master Control of the availability of peripheral units, the Environment Control Routine permits maximum utilization of input/output units. The MCP also provides special monitoring and trace routines to simplify program debugging and spotting of logical errors.

Other features of the B 5000 dictated by requirements of modern compiler techniques are its "stacks." Located in core memory, these are floating registers which provide automatic temporary storage and "recall" of data called for by the automatic operating system, or MCP.

Internally, the B 5000 memory word consists of 48 bits plus a parity bit, with information represented in either binary form, or as eight six-bit characters. Thus memory may be addressed either by word or by characters, and the system may simultaneously process scientific and commercial problems expressed in binary and alphanumeric forms.

One or two Line Printers may be incorporated into a B 5000 system. The printer operates at 650 120-position lines per minute, and accepts information transmitted from an I/O channel into a 120-position/buffer, which permits immediate initiation of the print cycle at any point in the drum cycle.

Burroughs stresses that its new computer system is problem-oriented rather than hardware-oriented. The system was designed to take advantage of modern programming techniques, with many equipment features dictated by the requirements of modern "common language" compilers. The B 5000 has an automatic programming system package including ALGOL and COBOL compilers.
Circle No. 129

*"To manage a business well is to manage its future; and to manage the future is to manage information."* —*Marion Harper, Jr.*

## Intelligence Director

Continued from Page 23

posure of our intelligence methods. He would, of course, have marshalled all available information on the weather, the feasibility of the flight, the likely alertness and location of Russian ground forces and many other details. He might also have committed himself to the probabilities involved in different alternatives — with his conviction flowing out of his documentations.

Many of the problems in business aren't quite so spectacular, but consideration of them could benefit from the same kind of informed balancing of alternatives.

Against the desirability of having such a Director of Intelligence Services, today, is that there is a glaring shortage of research professionals—at least of well-rounded professionals trained to relate the various social sciences to the problems of business; men who know the relevance of research, who know its function in the decision-making process, who have a working knowledge of the many new intricate techniques at their disposal.

### Under one roof

Here is the crux of the problem: How many research people measure up to this standard? Relatively few. But demand for the trained men and women who can help improve decisions is increasing day by day; and despite the attraction of salaries raised by competitive bidding, the supply is far below the demand.

One reason is that there is no academic center for their training and development. There is no advanced school today which offers a specific curriculum for the development of an intelligence executive.

What is needed is a professional school very much like a law school, medical school or engineering school, which could launch young men and women on a highly rewarding career—a career which could place them at the exciting nerve centers of business and bring them into the highest counsels of management.

The object of such schooling would be to give students at least a working familiarity with business operations and the basic knowledge required for planning and executing a broad-gauge research program. It would indoctrinate young men and women in the business of problem-solving through the management of information. The chief executive would still practice the "art" of problem-solving; but the aspirant intelligence director would learn what can be learned about the "science" of problem-solving.

Today, the technical skills for a good intelligence director are fairly well-known. Actually, they are already being taught in a number of universities and some are taught very well. But, usually, they are found, not only in different departments, but in different schools. Even if they are all available under the roof of one university, there is no provision for a student to train in a single curriculum.

What might such a curriculum include?—"Survey techniques," currently taught well in only a few places; "statistics," indispensable to the modern researcher, and given usually in a statistics, mathematics or psychology department; "econometrics," in economics departments; "projective psychological research" (which goes under the name of motivational research) taught in psychology departments; "the theory and practice of experimentation," found in the department of industrial engineering or, sometimes, in the statistics department; and "operations research," in the department of industrial engineering.

### Under one director

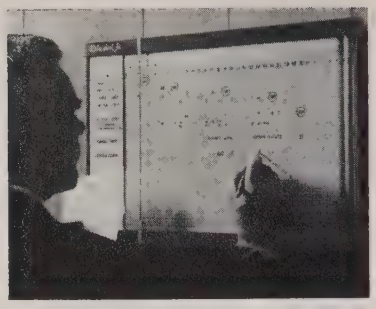
Other courses for a research generalist might include "computing-machine techniques," "analysis of administrative data," such as data compiled by the Census or by industrial trade associations; and related study in "library techniques." And finally, to complete such an intelligence curriculum, the "design and management of research" (the managerial supervision of research).

Such a curriculum can be projected from every-day observation, but its formulation into a program leading to an academic degree is obviously the prerogative of a university; and a university faculty might design such a curriculum—to be offered in the earliest possible academic year—so that the needs of government and business for research generalists will be partly satisfied.

The research carried on today by business, government and institutions may involve definitions of markets, analysis of community, trade and labor relations, auditing of promotion, appraisal of opportunities for expansion. Most of these problems cut across more than one social science—economics, sociology, business administration and so on —and can be solved most perceptively under the direction of one intelligence director. ■

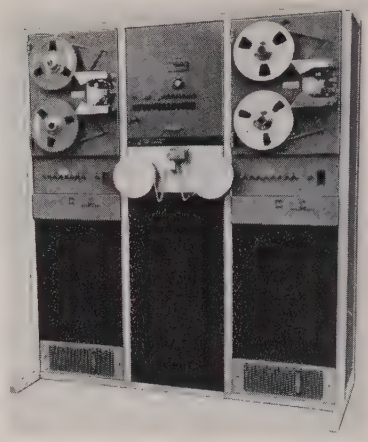
# *Business Automation Showcase*

## Scheduling System



The newest Rol-a-Chart visual control board is the compact Rol-a-Chart, Jr. This board can be used for production control, scheduling of customers orders and executive appointment setting or reservation planning. In the tab room it is used as an effective method for assigning time on data processing equipment. Rol-a-Chart, Jr. consists of a stationary index and a continuous transparent, plastic sleeve that moves across a fixed grid. Entries are made with marking pencil and erased with a cloth. This sleeve is moved ahead each day or week and all schedules are moved up. Size allows flexible use. Circle No. 123

## Tape Converter

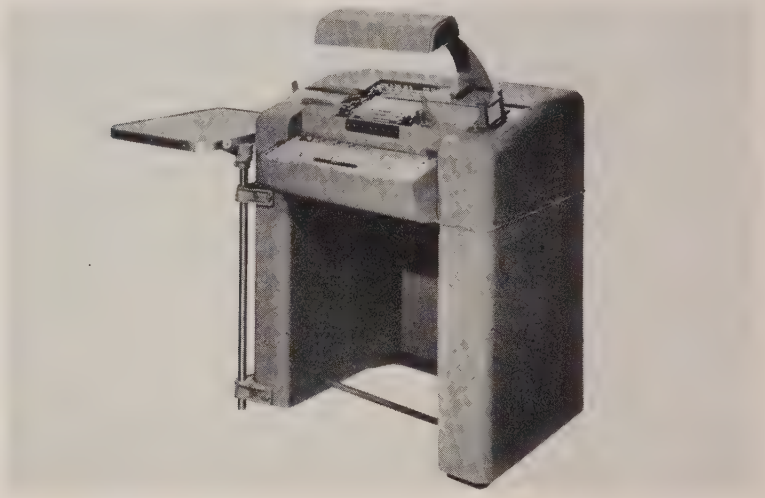


Data may be extracted from punched paper tape and written on magnetic tape, for business and scientific applications, on a new Model 1433 converter developed by Tally Register Corp. Input and output data are completely identical in content. No code change is normally performed, with the output record being a bit for bit image of input perforated tape, except for format changes. A universal code conversion is optional. Circle No. 108

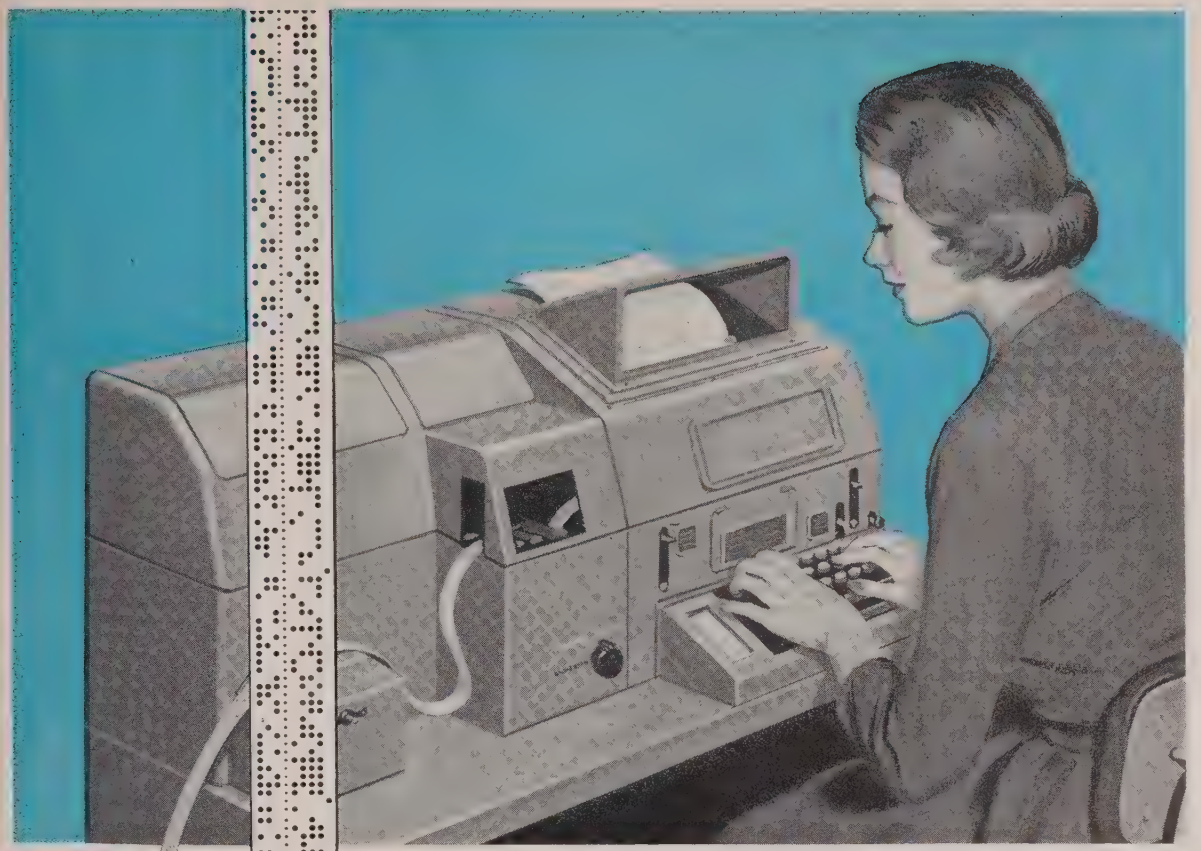
## Card Truck System

A new Truck System for vertical filing of punched cards has been announced by Tab Products Co. The mobile system comprises a four-shelf truck with a tilted, double-sided Tabtray rack with an optional Tabtray truck which accommodates seven trays vertically on each side. The basic two models of trucks are of sturdy construction and, used with removable Tabtray racks, provide transportation and storage. Circle No. 118

## Photoelectric Verifier of Punched Cards



Photoelectric sensing has been introduced by Remington Rand Univac Div. of Sperry Rand Corp. as an alternate method of verifying punched cards. The device used is a new Type 2450 Univac Photoelectric Key Verifier. The verifier features adjustable right and left margin stops. By setting a switch, the carriage, upon contact with the right margin stop, automatically returns and shifts to lower register. Upon the second return to the right, the machine automatically feeds a new card. Verification is made, in one pass, of either Univac 63-character code or 37-character code. Cards are in full view of the operator, who keys information from the original source. In the event of variation the keyboard locks and an error light flashes. Circle No. 105



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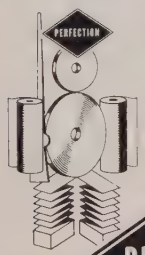


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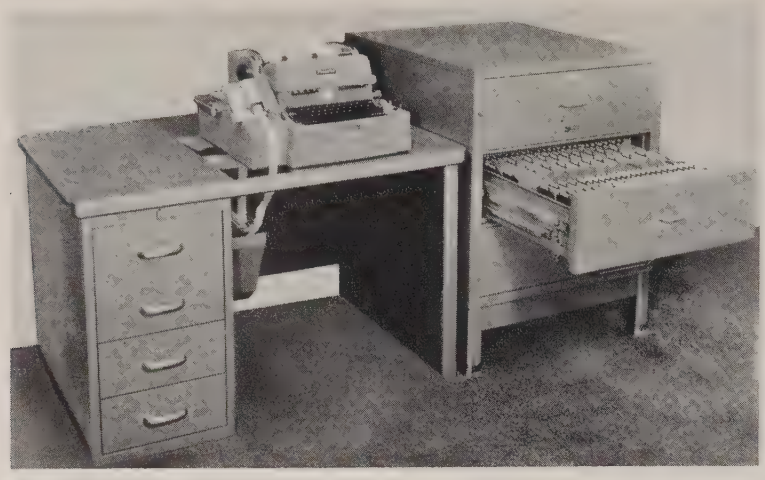
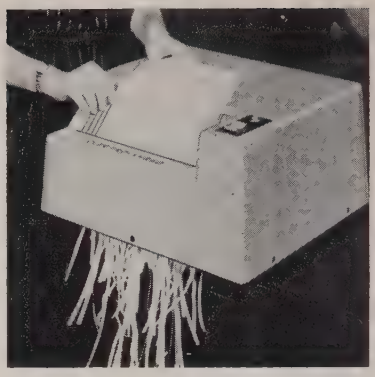
## Fireproof Equipment for Punched Paper Tapes



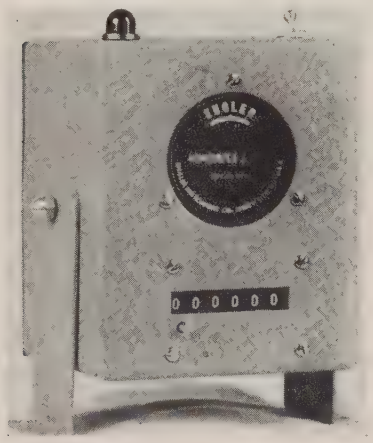
Twenty-four hour fire protection for punched paper tapes and edge-punched cards, at point of use, is provided for with Shaw-Walker Co.'s new Perfected Flexowriter File-Desks. They are heavily insulated and approved by Underwriters' Laboratories. The Fire-File equipment comes in two models and will house up to 10,000 punched paper tapes. The smaller model (shown above) will provide fire protection for some 6,000 tapes with up to 2,000 per drawer. The desks are designed as convenient work stations for Flexowriter machine operation. A Simplified Tape-Holder is featured, which has a signaling device for speeding return of tapes to the drawers. Circle No. 109

## Paper Shredder



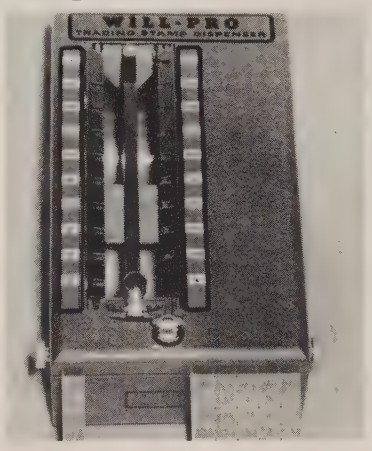
A new, low cost, precision built office machine designed to destroy confidential paper work and to insure company's privacy, has been introduced by Electro-Shred Corp. Papers to be disposed of are fed into the machine and in a matter of seconds dropped into the waste basket shredded beyond recognition. Confidential business information will not be seen by unauthorized persons. The device is about the size of a typewriter and works quietly and safely. Circle No. 111

## Timer-Counter




An addition to the Engler Instrument Co. line of Business Machine Hour Meters is the Engler Combination Hour Meter and High Speed Counter, for use with most IBM, Electronic Accounting Machines. This precision instrument will register an accurate record of production time as well as counting the cards processed, eliminating certain manual records. At the same time, this instrument registers a complete record of work load and machine performance for further study. Circle No. 110

## Stamp Dispenser




A new machine for dispensing trading stamps has been developed by the Stamp Dispenser Sales Corp. and is now being used on the west coast. The manually operated unit is called the Will-Pro Trading Stamp Dispenser, and is engineered to give speed and accuracy in performing its task. It will dispense stamps in denominations ranging from 10 cents to five dollars. It weighs 15 pounds and measures seven by twelve by seven inches. A roll of 30,000 stamps can be held. Circle No. 124

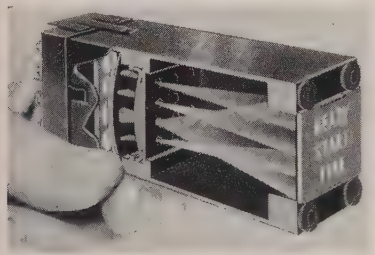
## Two-Process Printer


A two-process printer for making transparencies for overhead projection has been introduced by the Ozalid Div. of General Aniline and Film Corp. The Projecto-Printer 40 produces sharp transparencies up to nine and one-half by twelve and one-half inches from bound books, material printed on both sides or individual illustrations. The two reproduction processes used are the dry developing diazo (direct copy) method producing a transparency directly onto Projecto-Viewfoil and the reflex photocopy method making transparency directly onto clear Transferon film. Circle No. 119

## Systems Paper

Copy papers that will make black-on-white permanent reproduction in any "Thermo-Fax" Copying Machine has been announced by Minnesota Mining and Manufacturing Co. Papers eliminate carbons of letters, order forms, inter-office memos, reports and similarly internally originated documents. New papers are Type "A" Pink Systems Paper and Type "B" White Systems Paper. The two types are inserted into the "Thermo-Fax" Copying Machine along with the original, and two copies of different types are made. Circle No. 126

## Miniature Readout

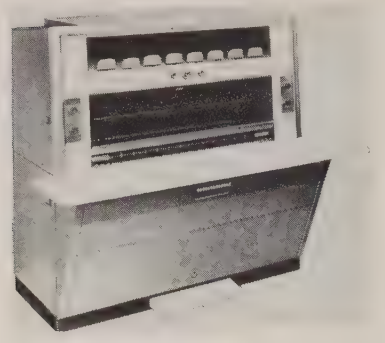


Words up to five letters, individually or in any combination, with or without colored backgrounds may be displayed on this Series 120000 Sub-Miniature Readout introduced by Industrial Electronic Engineers, Inc. The aluminum-cased unit is of module construction, compact and lightweight. It is designed to be used in conjunction with computers, airborne equipment, instruments, control systems, production and inventory control. Operating on a rear-projection principle, the unit contains a master condensing lens with twelve individual positions or lenses over which color or words or both are placed. When one of the 12 lamps at the rear is lighted the proper signal is presented on the viewing screen. Circle No. 125

## Reader-Printer

Reference copies from microfilm records are made on this office-size reader-printer introduced by Photostat Corp. No darkroom is required. Photocopies are produced in black-on-white from microfilm. The Documat Reader-Printer provides trimmed eight and one-half by eleven inch prints from rolls of special silver-sensitized paper, in a minute's time. Copies are produced during the viewing process. The screen is 11 by 11 inches. Interchangeable lenses may be used to provide various magnifications. The turret projection head rotates 360 degrees, adjustable projection lighting varies illumination, film adapter positions film in jackets or aperture cards. Circle No. 106

## Whiteprinter Developer

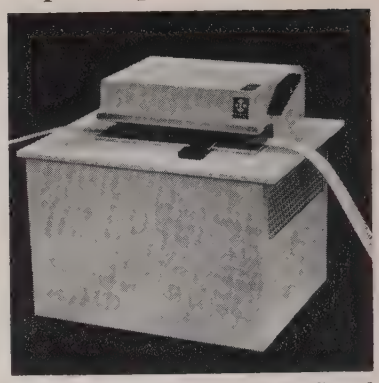


The Printmaster 900, a deluxe whiteprint machine designed with a new sleeveless developing system, has been introduced by Ozalid Div. of General Aniline & Film Corp. Engineering and architectural drawings as well as visual aids materials and a variety of business forms may be reproduced on the new equipment. The 900 accommodates materials of any length and up to 42 inches wide; printing and developing speeds are synchronized up to 75 feet per minute. The sleeveless dry diazo developing system assures scratch-proof protection of sensitized films and eliminates the need for slip sheets. Circle No. 120

## "Filter-Blok" Wires

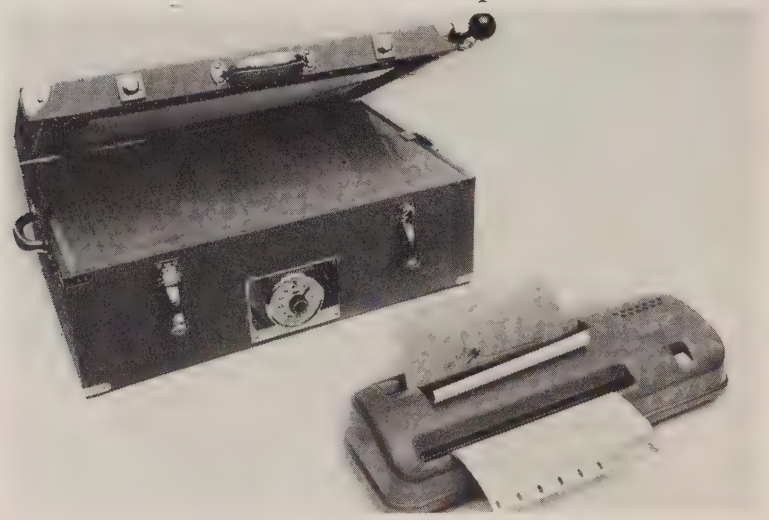
Edward Ochman Systems has announced a new product in the data processing accessory field — Ockie "Filter-Blok" Wires. They are designed to eliminate back circuits that occur in control panels by allowing the current to flow in one direction only. Strong silicon rectifiers assure that leakage or weak diode failure will not occur. Two-way split, three-way split and four-way split "Filter-Blok" Wires are available. Each unit is strongly soldered on the rectifier and properly sealed for protection to assure minimum of space required eliminating pulled out wires. Circle No. 115

## Paper Tape Reader



A new model 350 High Speed Punched Paper Tape Reader has been released by Control Data Corp., for use with their 1604 and 160 computers, and general application. The photoelectric reader uses solid state components throughout and is available either with reading circuitry for five, seven or eight level punched paper tape at the rate of 350 characters per second. A reading head employs special windows which channel the light to the photocells. It reads various colored tapes as well as oiled and soiled tapes without requiring adjustment. Circle No. 127

## Vacuum Frame Printer and Developer for Offset Plates



A Vacuum Frame Printer and Developer has been introduced by Copy-Craft, Inc., for making offset plates. The equipment is designed for use in the office. Equipment consists of a separate vacuum frame printer and developer. No darkroom or cameras are required. Originals may by typed, handwritten, drawn or printed. The process takes less than a minute. Equipment can be operated without special training. Plates may be reproduced for both line and halftone reproduction. Blueprints and difficult pasteups may also serve as originals. The offset unit can be used for regular photocopy work. Circle No. 107

## Electronic File Line

Five new models of the 1961 line of Remington Rand Kard-Veyer filing units have been announced by the Remington Rand Systems Div. of Sperry Rand Corp. This expands the line to 26 mechanized filing units ranging in card capacities from 14,000 to 1,000,000 and for card sizes eight by five inches through two and one-quarter by three inches. Operation is transistorized and an electronic safety device protects the operator. The units have an automatic push button selector panel which brings a tray of cards in approximately two and one-half seconds to an operator. Circle No. 114

# *Copies On Request*

**The Fastest Reported Election** — IBM tells of their part in the exciting 1960 presidential election in a 20-page, illustrated brochure. Circle No. 131

**Data Communications**—The TELautograph Corp. publication, Business Communications, includes the Lockheed Aircraft Corp. computer inquiry system application story. Circle No. 132

**Order Billing**—A way to eliminate repeat writing in order-billing is outlined in a new booklet from the Charles Bruning Co., Inc. Circle No. 133

**Duplex Comptometer**—A new calculator, Duplex Model 12D, by Comptometer is described in a bulletin. Circle No. 134

**Plugboard Programming Systems**—Mac-Panel Co. offers a catalog of a complete line of plugboard programming systems from their new subsidiary, OEM Div. Circle No. 135

**Partition Panels**—A bulletin, "Space Control With Gold Bond Partition Panels," provides architectural and engineering data, including photographs, drawings, data and specifications on National Gypsum Co.'s panels. Circle No. 136

**Programming Brochure**—An eight-page brochure describing several important automatic programming systems for the Bendix G-15 digital computer is now available. Circle No. 137

**DocuTran Service** — Science Research Associates, Inc. describe in a brochure their service which transfers information from business forms to punched cards by photoelectric scanning. Circle No. 138

**Management Bookshelf**—The American Management Association has made available to all interested executives their 1960-1961 publications catalog. Circle No. 139

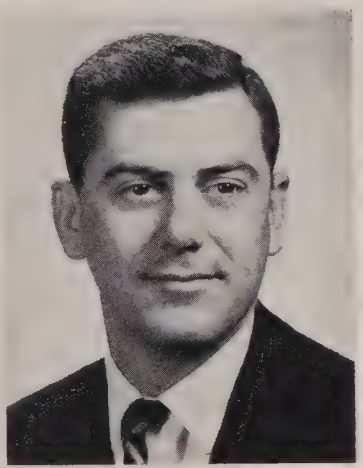
# NEWS

## OEMI New York Show

Some 65 leading manufacturers of business machines, equipment and related supplies will take part in the Business Equipment Exposition to be presented at New York City's Coliseum, April 17-21.

The show, sponsored by the Office Equipment Manufacturers Institute, will be making its first appearance in the New York area. According to Lloyd M. Powell, president and chairman of the Executive Committee of Dictaphone Corp., and president of OEMI, "not since 1956 have so many of the leaders in the business equipment manufacturing industry joined together in a major exposition in New York City."

## Western Editor Named



Robert B. Forest

In conjunction with the expansion of its editorial staff, Charles W. Gilbert, publisher of Management and BUSINESS AUTOMATION magazine, has announced the appointment of Robert B. Forest as Western Editor.

Formerly public relations manager of Burroughs Corp.'s Electro-Data Div., Forest also served that company as technical writer and editor before joining the BUSINESS AUTOMATION staff. He is a graduate of the University of Chicago and a member of the Association for Computing Machinery.

## Computer Power At Westinghouse

Wide-angle view of the new Westinghouse multi-million dollar computer center at East Pittsburgh, Pa., showing the IBM 7090 computer system and the modern lobby with divider containing colorful rocks, urns and plants. The center, with six computers, was expanded three times its former size.

With the recent addition of an IBM 7090 computer system, the new Westinghouse Electric multi-million dollar computer center at East Pittsburgh, Pa., has become one of the world's largest and most advanced commercial installations.

According to Mr. A. C. Monteith, vice president of Westinghouse's Apparatus Products Div., "We have assembled a combination scientific-commercial data processing center second to none in the industry."

In addition to the 7090, the center is equipped with a Remington Rand Univac, two IBM 1401 systems, an automated data plotter and the latest data transmission devices. Also included for engineering facilities are three large-scale analog computers used for electrical systems simulation.

The center is one of the first in the country to combine both scientific and commercial work in the same integrated program. Business systems programs now operating in the center include shop loading and scheduling, sales analysis and statistics, job shop simulation and payroll and accounting programs.

Engineering programs underway include design and application studies for a wide range of products from nuclear reactors and turbogenerators to small motors. "Powercasting," a group of computer programs developed by Westinghouse, provides detailed simulation of electrical power systems for advanced systems planning.

The expanded computer center will make it possible for Westinghouse to take direct transmission of customer requirements from sales offices throughout the world, prepare engineering specifications, write the shop order, check inventory, schedule production and prepare invoices.

"Under the new system," said Mr. Monteith, "our engineers anywhere in the country will be able to transmit data to the center in the morning, get the answers back, change their data and get a second set of answers on the same day."

"With this equipment," he added, "it is now possible for Westinghouse to pursue a total systems approach through integrated data processing functions to serve research, sales, design engineering, manufacturing and accounting."

# Current Computer Census Chart

| Manufacturer, Type, Model | Price Average System ($1,000) | Average Rental ($/Mo.) | Qty. Delivered | First Shipment | Deliv. Time (Months) |
|---|---|---|---|---|---|
| **Punched Card Calculators and Computers** | | | | | |
| IBM 604 | 26 | 550 | 4,400 | 12-48 | 2-6 |
| IBM 607 (discon.) | 42 | 900 | 540 | 10-53 | 2-6 |
| IBM 609 | 55.5 | 1,175 | 40 | 11-60 | 14-16 |
| Univac 60 | 75 | 1,015 | 1,000 | 6-54 | 4 |
| Univac 120 | 97.5 | 1,350 | 1,000 | 6-54 | 4 |
| **Large-Scale Computers ($750,000 up)** | | | | | |
| Control Data 1604 | 1,155 | 32M | 12 | 1-60 | 10 |
| GE 210 | 800 | 16M | 25 | 7-59 | 18 |
| Honeywell 800 | 1,000 | 20-40M | 5 | 11-60 | 12-15 |
| IBM 704 (discon.) | 1,900 | 44M | 100 | 12-55 | — |
| IBM 705 (Models I, II, III) | 1,900 | 37M | 155 | 11-55 | 15-20 |
| IBM 709 | 2,600 | 55M | 50 | 8-58 | 15-20 |
| IBM 7070 and 7074 | 1,200 | 24-30M | 50 | 3-60 | 18 |
| IBM 7080 | 2,530 | 55M | 0 | 1961 | 18-42 |
| IBM 7090 | 2,880 | 64M | 50 | 11-59 | 18 |
| NCR 304 | 850 | 14M | 16 | 1-60 | 12-15 |
| Philco 2000 | 1,500 | 30M | 15 | 10-58 | 12 |
| RCA 501 | 800 | 16M | 50 | 5-59 | 12 |
| RCA 601 | 2,000 | 35M | 0 | 7-61 | 18 |
| Univac I (discon.) | 1,280 | 23M | 48 | 4-51 | — |
| Univac II | 1,520 | 28M | 32 | 12-57 | 12 |
| Univac III | 1,000 | 20M | 0 | 1962 | 18-24 |
| Univac 490 | 1,500 | 30M | 0 | 1962 | 18-24 |
| Univac 1101-1105 | 1,500 | 30M | 45 | 5-50 | 12 |
| Univac 1107 | 2,500 | 50M | 0 | 1962 | 18-24 |
| **Medium-Scale Computers ($75,000-$750,000)** | | | | | |
| Alwac III-E | 120 | 3,600 | 40 | 2-54 | 1-3 |
| Bendix G-15 | 80 | 2,150 | 380 | 7-55 | 2 |
| Bendix G-20 | 545 | 15,000 | 0 | 3-61 | 14 |
| Burroughs 205 | 250 | 4,600 | 150 | 1-54 | 6 |
| Burroughs 220 | 560 | 14,000 | 55 | 10-58 | 6 |
| Burroughs B251 VRC | 217 | 3,975 | 0 | 1961 | — |
| Control Data 160 | 80 | 2,000 | 25 | 4-60 | 6 |
| GE 225 | 250 | 7,000 | 0 | 1961 | 18 |
| Honeywell 400 | 390 | 8,660 | 0 | 7-61 | 15 |
| IBM Ramac 305 | 190 | 3,200 | 900 | 11-57 | 12 |
| IBM 650 (All types) | 215-480 | 4-9,000 | 1,400 | 11-54 | 8-12 |
| IBM 1401 (All types) | 150-400 | 3-10,000 | 200 | 9-60 | 24 |
| IBM 1410 (All types) | 328-722 | 7-18,000 | 1 | 12-60 | 24 |
| IBM 1620 | 95 | 2,000 | 40 | 9-60 | 10 |
| NCR 315 | 315-400 | 6-8,500 | 0 | 1-62 | 18 |
| NCR 390 | 75 | 1,850 | 2 | 5-60 | 12-18 |
| RCA 301 | 271 | 5,500 | 5 | 3-61 | 18 |
| Royal Precision RPC-4000 | 87 | 1,750 | 1 | 12-60 | 3-6 |
| Royal Precision RPC-900 | 120 | 2,450 | 1 | 8-60 | 6 |
| Univac File Computer 0 and 1 | 180-250 | 4-6,000 | 127 | 8-56 | 12 |
| Univac Solid-State 80 and 90 | 347 | 6,950 | 220 | 10-58 | 12 |
| **Small-Scale Computers (Under $75,000)** | | | | | |
| Burroughs E101 | 27 | 875 | 220 | 11-55 | 1-2 |
| Burroughs E103 | 29.7 | 965 | 0 | 1961 | 3 |
| Clary DE-60 | 18 | 540 | 20 | 2-60 | 1-3 |
| IBM 632 | 8.2 | 225 | 1,100 | 6-58 | 4-9 |
| Monroe Monrobot IX | 9.6 | 275 | 106 | 3-58 | 3 |
| Monroe Monrobot XI | 24.5 | 700 | 12 | 4-60 | 6 |
| Royal Precision LGP-30 | 49.5 | 1,100 | 440 | 9-56 | 1-2 |

Where exact figures were not available, estimates were used.

# NMAA Plans Tenth Anniversary Conference

Mr. Bernard R. Purslow, Ontario Hospital Services Commission, vice president and chairman of the NMAA Tenth Anniversary Conference.

Fewer subjects, but fuller treatment, will underline plans for the 1961 Conference of the National Machine Accountants Association, to be held in Toronto, Canada, June 28-30, according to Mr. B. R. Purslow, 1961 Conference Chairman. The conference, which will mark NMAA's tenth anniversary as a professional society, will take place at the Royal York Hotel.

The preliminary program format calls for 16 general sessions, eight industry sessions and eight workshop sessions. Each session would be three hours long, and would be presented twice during the conference.

A special attraction being planned is a two-day educational session for those with punched card installations who are considering a transition to computers in the near future. Included in this presentation would be a basic explanation of computers, explanations and comparisons of computers presently available, the systems approach and techniques of feasibility studies, the organization of a computer department and its operation.

The general sessions will cover management, machines, systems and related subjects. Industry sessions tentatively slated will involve banking, wholesale and retail distribution, insurance, utilities, railways and education.

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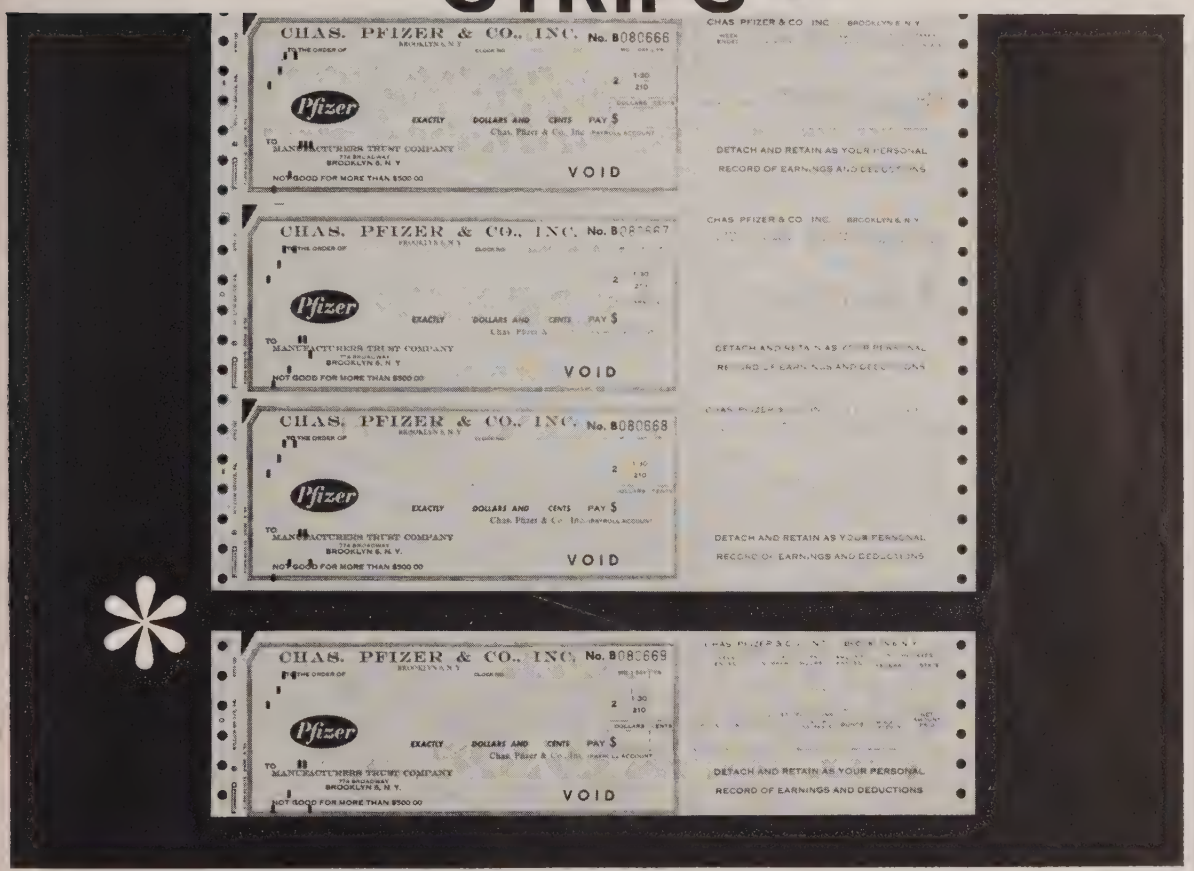


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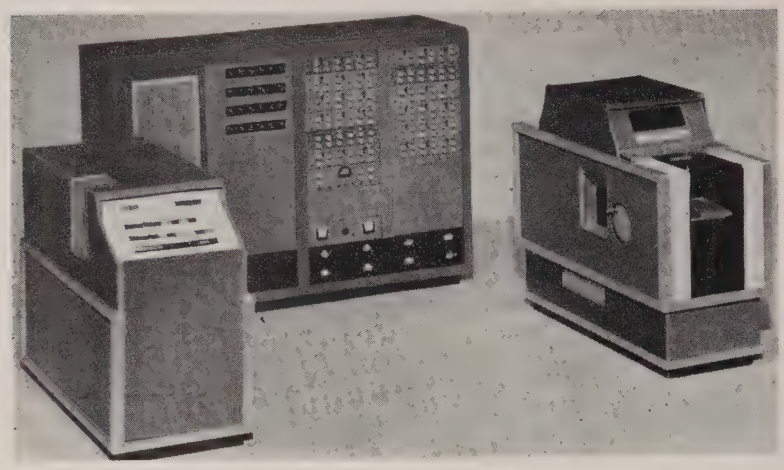
For More Information Circle Reader Service Card No. 174

## SRA Introduces DocuTran Service



DocuTran data processing input system (shown above) is SRA's photoelectric scanner originally developed for educational test scoring.

Science Research Associates, Inc., Chicago, Ill., has announced its entry into the data processing field with DocuTran service, utilizing photoelectric scanning equipment which was originally developed for their educational test scoring program at the State Univ. of Iowa. Business forms may be marked with an ordinary lead pencil, sent to SRA, read by the scanner on either or both sides and punched cards produced at the rate of 5,000 per hour. DocuTran completely eliminates the key punch operation.

The prototype photoelectric scanner used for DocuTran is now in operation at the University of Iowa; another unit will soon be installed at SRA's McHenry, Ill., Data Processing Center. SRA is planning a versatile EDP service.

## Gas Meter Readings Linked to Computer

Gas meter readings are being microwaved to a computer in Chicago from more than a third of the way across the nation as part of a centralized gas accounting system initiated by the Natural Gas Pipeline Co. of America.

The computer, an IBM 650, located in the firm's Chicago headquarters, receives meter readings from Houston and Amarillo, Texas. The information is used to keep track of deliveries, pay royalties and compile other gas accounting reports.

Under the company procedure, "orifice" meters measure the volume of gas flow at each of 800 gas purchase points—"gas wells" scattered across Texas. These meter charts are picked up by metermen at scheduled intervals and taken to the proper production offices. There the information from the charts is calculated and punched into IBM cards. The cards are fed into an IBM 66 Printing Data Transceiver which sends the information via microwave to the Chicago office, where it is received by transceivers in punched card form.

The cards are matched with master meter cards and fed into the 650 computer. Every four and one-half seconds a card is punched out containing the volume of gas and all data and factors used in its computation. The output cards are placed in the transceiver and the information microwaved back to the originating production office, where it is used to maintain contract requirements.

## Tax to be Controlled By Social Security No.

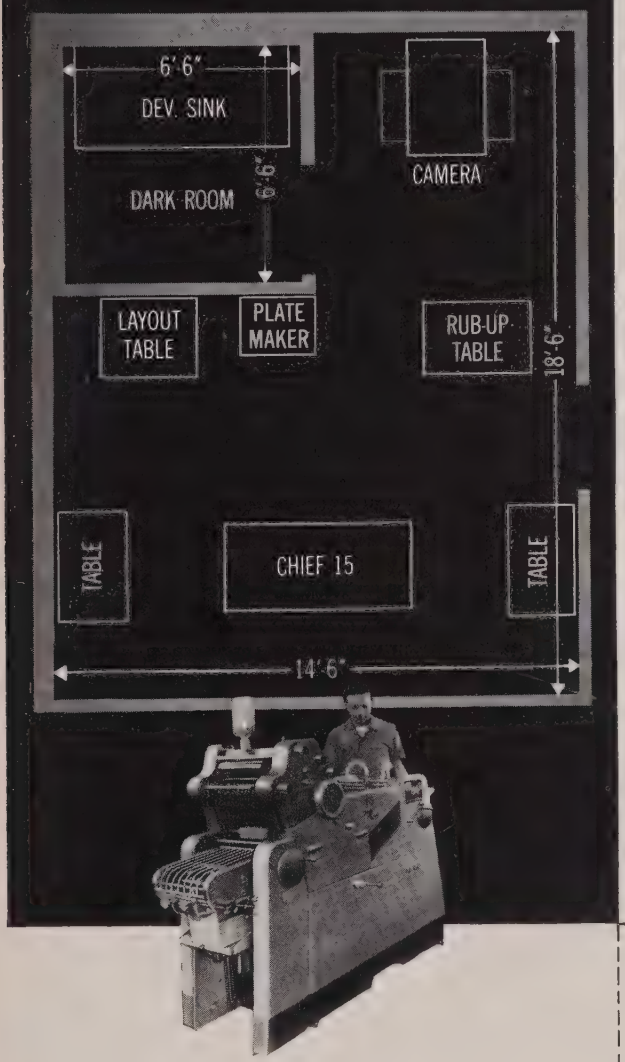
Proposed legislation that would give each tax payer a lifetime identification number has been referred to the House Ways and Means Committee. The action was recommended by President Eisenhower in his final budget message to Congress, which pointed out that tax account numbers were necessary for the complete electronic handling of all tax returns. Such a program, he said, is "no longer a luxury—it is a necessity." Under the proposal, Social Security numbers, already assigned to 95 percent of all taxpayers, would serve as the tax account number.

Use of the common number will allow the Internal Revenue Service to perform an electronic cross-check on all reported income for each tax payer. Under the proposed law, banks, corporations, insurance companies and other dividend and interest-paying firms will be required to report social security numbers along with payments.

Another Eisenhower recommendation that awaits house action is the authorization for consolidating the reporting of wages for income tax and social security purposes. The plan, which would permit employers to substitute annual W-2 forms on a worker's withheld wages for the reports now filed quarterly on Social Security tax withholdings, was previously rejected by Congress.

Officials estimate that the suggestion would relieve nearly four million employers of the need to file for social security purposes some 14 million separate quarterly wage reports each year, covering over 230 million wage items. They predicted big paper work savings.

# This profitable offset department can be YOURS for less than a dollar an hour!




For less than a dollar per *working hour*, you can purchase a complete ATF offset department, including: press, camera, darkroom sink, negative layout table, platemaker, and utility table. If you have some seldom-used equipment to trade in, chances are you will need little or no down payment.

Or you can lease the complete "package"—or any part of it—without trading in any equipment or making a down payment.

Either way, you get brand new equipment—and only what you need—on the easiest terms. You can pay as you go and make a profit as well.

Heart of this plan is the ATF Chief 15, the small press with the big press features...the press which has been chosen by over 1500 professional printers. You can see this press and the related "package" equipment in operation at your nearest ATF Branch Office; or your ATF Representative will supply full details, including a folder, "How to Set Up for Offset," which outlines various plans and choices of equipment. If you prefer, use the coupon below.

ATF

ATF Type Faces used in this advertisement: heads, Craw Clarendon; text, Bodoni Book; coupon, News Gothic Condensed.

**American Type Founders**

**American Type Founders, Dept. C**
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I'm interested in your "Offset Package Plans" on a ☐ purchase ☐ lease basis.

Name_____ Title_____

Company_____

Street and Number_____

City_____ Zone_____ State_____

(If you have trade-in equipment, list descriptions, models, serial numbers)

For More Information Circle Reader Service Card No. 175

# Book Reviews

## Management Organization And the Computer

*Edited by George P. Shcultz and Thomas L. Whisler. Published by the Free Press of Glencoe, Ill. $7.50.*

Computer technology advances so rapidly that any book, such as this one, on business applications may seem already dated.

The McKinsey Seminar, held in February, 1959, at the Graduate School of Business, the University of Chicago, provided a much needed opportunity for computer scientists, business educators and business managers to share their advances, philosophies and applications of computing machinery. The 11 papers read there, subsequent discussion and some classic applications are contained in this valuable publication, from an historical view.

## Management for the Smaller Company

*Edited by Elizabeth Marting. Published by the American Management Association, Inc., 1515 Broadway, New York 36. $9.00.*

Companies employing under 1,000 people will find this book a valuable guide to the proper management of such an enterprise.

Depth coverage of almost every conceivable area of small business management is contained in one comprehensive volume. Of particular interest are chapters devoted to encouraging the feasibility of automation techniques and operations research in smaller business.

## Linear Programming and the Theory of the Firm

*By Kenneth E. Boulding and W. Allen Spivey. Published by The Macmillan Co., 60 Fifth Ave., New York 11. $8.00.*

For the courageous adventurer into the scientific conception of a vital business "law," "Linear Programming and the Theory of the Firm," presents a challenge.

The approach used is a presentation of the present position of the Theory of the Firm, its historical background and techniques, some basic mathematical concepts, an introduction to linear programming, an analytical and graphical comparison of marginal analysis and mathematical programming in the theory of the firm, and operations research.

## J. K. Lasser's Business Management Handbook

*Edited by Sydney Prerau, director, J. K. Lasser Tax Institute. Second Edition. Published by McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36. $12.50.*

Prominent executives, treating their own specialized area, give pointers on organization, operation and management of business.

Revised and updated, this second edition presents new information on laws regulating a business and its customers; fair trade practices; antitrust laws; retail price maintenance; and modern techniques used in running businesses.

## Management Control Systems

*Edited by Donald G. Malcom and Alan J. Rowe; General Editor: Lorimer F. McConnell. Published by John Wiley & Sons, Inc., 440 Fourth Ave., New York 16. $7.25.*

The basis of this book is a symposium on Management Information and Control Systems held at the System Development Corp. in Santa Monica, Calif., on July 29-31, 1959, called to "explore the art," determine future developments and stress the need for future research.

Although it gets fairly technical, there is enough for the general manager to provide much food for thought. The top men in the field of researching practical applications of computer technology to business are represented. More important is what they have to say about the data processing function, its current application and some human factors to consider both now and in the future.

## The Crisis We Face

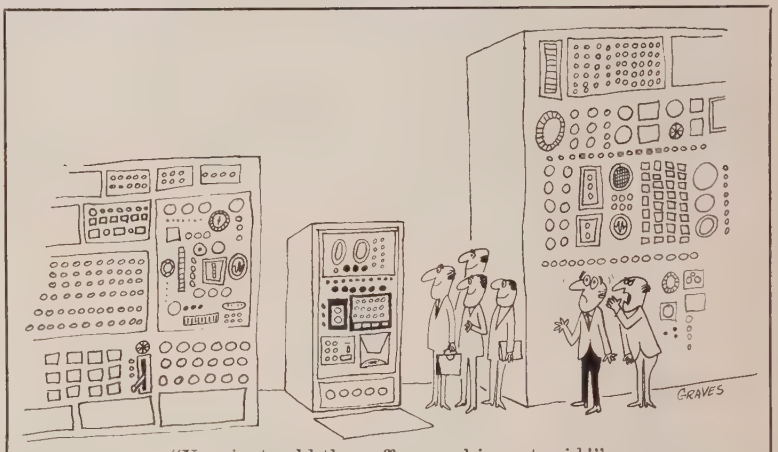
*By George Steele and Paul Kircher. Published by McGraw-Hill Book Co., 330 West 42nd St., New York 39. $4.95.*

Present methods of management and design of automation in missiles, factory and office are questioned by these authors.

The host of facts supporting their beliefs are taken "from the headlines," and include the failure of our missile launchings, the hypercomplexity of our technical designs, Russian economic offensive and the need for more effective automation and electronic computers.

Also discussed is the probable effect of radioactivity from a hydrogen bomb burst on electronic systems in bombers, missiles and Conelrad. Problems of management and government, such as complex organizational structures and the multiplicity of committees in the Department of Defense are also

*Continued on Page 62*




"You just sold the coffee machine, stupid!"

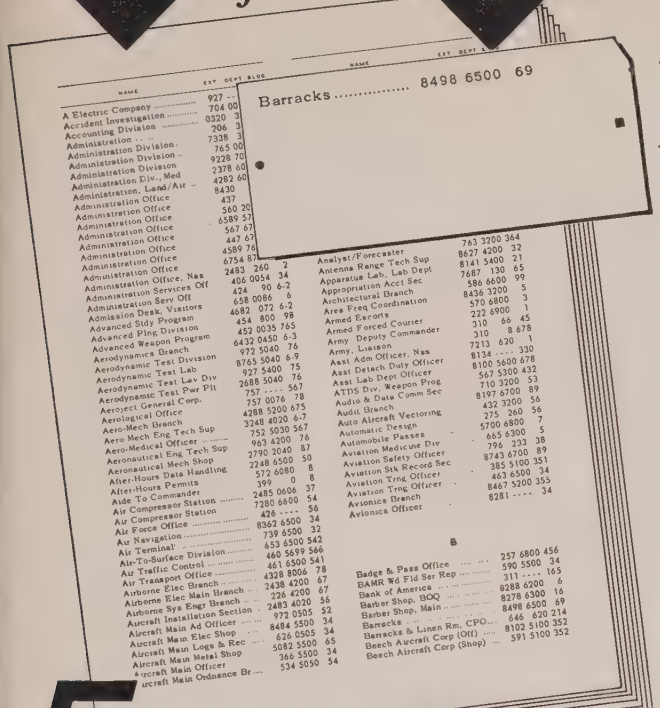
# this from this

← *automatically*

← *direct from your files*

← *without typesetting*

← *without error*



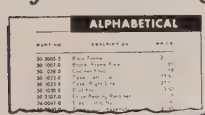

The FOTOLIST System will automatically process the information on your file cards into perfectly aligned and uniformly spaced listings, producing a ready-for-plate negative at the same time. Exclusive registering mechanisms insure hairline accuracy of column alignment and line spacing despite the machine's high speed. The data on the original cards is recorded on a VARITYPER machine with any combination of printer's style and size of type *(instantly changeable)*. Thus, the finished listing will have all the attractiveness and legibility of professional metal type composition while completely eliminating its cost, time and proofreading.

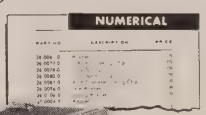
*The VARITYPER Machine wrote the text for this advertisement. The headlines were photocomposed on the HEADLINER Machine, another office type-composing model*

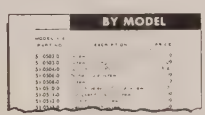
# Fotolist SYSTEM

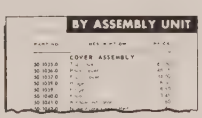
## *Automatically* COMPOSES THE DATA ON YOUR FILE CARDS INTO LISTS, COLUMNS OR PARAGRAPHS OF READING MATTER

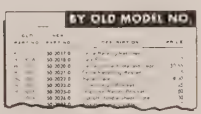
## *...for Catalogs, Directories, Indexes, Parts and Price Books, etc.*




SOME OF THE MANY LISTINGS POSSIBLE FROM A SINGLE FILE OF CARD DATA

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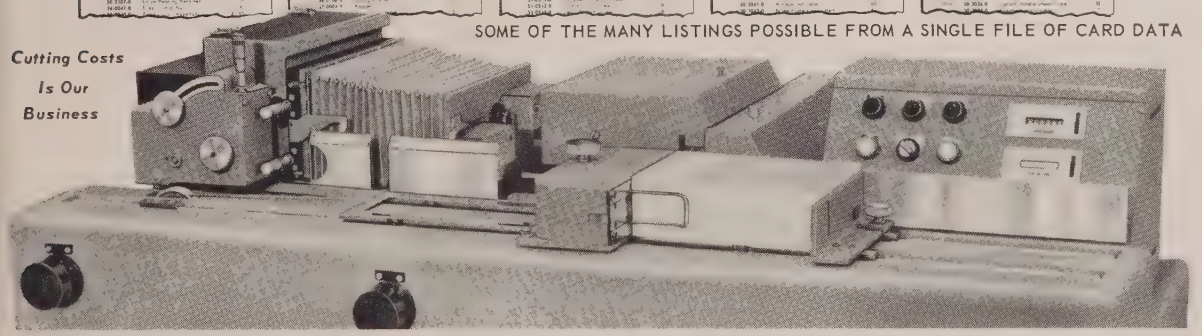

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## Book Reviews

*Continued from Page 60*

considered, blaming it to managers.

A standardized system components, simpler computers and automation, and improved research are suggested as solutions.

The tone of the book is generally that of alarmist speculation. Read and consider with caution.

### Data Processing 1960 Proceedings

*Edited by Charles H. Johnson. Published by the National Machine Accountants Association, Mt. Prospect, Ill. $10.00.*

Proceedings of the National Machine Accountants 1960 Conference, held June 22-24, in San Francisco have just been published by the NMAA.

Among the many interesting papers printed are "The Human Factors in Business Electronics," by John S. Woodbridge; "What to Expect from the Computer Manufacturer," by Dean A. Holdiman; "Introduction to Advanced Management Techniques," by Dale J. Raar; "Writing Effective Reports," by Benedict Kruse; and the "Managing a Computer Center Seminar." A special section deals with papers on "Automated Input."

### National Microfilm Association Proceedings

*Edited by Vernon D. Tate, executive secretary. Published by NMA, P. O. Box 386, Annapolis, Md. $8.00.*

Papers and a complete record of the National Microfilm Association Ninth Annual Meeting, held in New York City, April 19-21, 1960, have been published in a 250 page book by the association.

NMA meetings provide an annual opportunity for members of industry, government and other special fields to exchange technology and experience in such areas discussed as reduction, dissemination, retrieval and reproduction of records, drawings and documents. Of particular interest are papers on "Microfilm—Secret Agent," describing how this weapon was resurrected in World War II; and "Municipal Arteriosclerosis—and Hardening of the Records," advocating the use of microfilm of water and sewer records.

# New idea book on GF accessories and equipment for data processing


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# Business Calendar

**April 4-6** — 10th Annual Meeting and Convention of the National Microfilm Association at the Sherman Hotel in Chicago. Write: Vernon D. Tate, ex. sec., NMA, Box 386, Annapolis, Md.

**April 17-21**—The Business Equipment Exposition, third major equipment show sponsored by the Office Equipment Manufacturers Exhibits, Inc., at New York Coliseum. Write OEME Headquarters: 777 14th St., N. W. Washington 5, D. C.

**April 24-28**—Sixth Institute on Research Administration, sponsored by The School of Government and Public Administration, The American University, Washington, D. C. Write: Lowell H. Hattery, Dir., Center of Technology and Administration, AU, 1901 F St., N. W., Washington 6, D. C.

**May 1-2**—Fourth Annual Records Management Conference sponsored by the Association of Records Executives and Administrators, Hotel Roosevelt, New York City. Contact: Miss Judith Gordon, AREA Conference, Metal & Thermit Corp., Rahway, New Jersey.

**May 7-11** — Forty-Second International Conference and Office Exposition of the National Office Management Association, Kiel Auditorium, St. Louis, Missouri. Write: Field Service Division, NOMA, Willow Grove, Pa.

**May 9-11** — Western Joint Computer Conference, sponsored by the IRE, AIEE and ACM. Ninth Annual Meeting theme: "Extending Man's Intellect," Ambassador Hotel, Los Angeles, Calif. For more information write: Dr. W. F. Bauer, Ramo-Wooldridge Co., 8433 Fallbrook Ave., Canoga Park, Calif.

**June 28-30** — Tenth Anniversary Conference of the National Machine Accountants Association, Royal York Hotel, Toronto, Ontario, Canada. More information: NMAA International Headquarters, 1750 West Central Road, Mount Prospect, Ill.

# ADVERTISERS' INDEX—MARCH, 1961

# EDITORIAL

## Panic on the New Frontier

Recent rumblings from Washington give indications that a campaign is underway to make automation the scapegoat for whatever may be wrong with the country's economy. Latest of the New Frontiersmen to punch the panic button is Rep. Elmer J. Holland (D-Pa.). Congressman Holland has been compiling statistics for the Committee on Education and Labor on the subject of "Unemployment and the Impact of Automation." He recently released to President Kennedy and the press, a preliminary report, which stated that electronic machines have eliminated 25 percent of the nation's clerical and office jobs in the last five years, and will eliminate an additional four million jobs during the next five years.

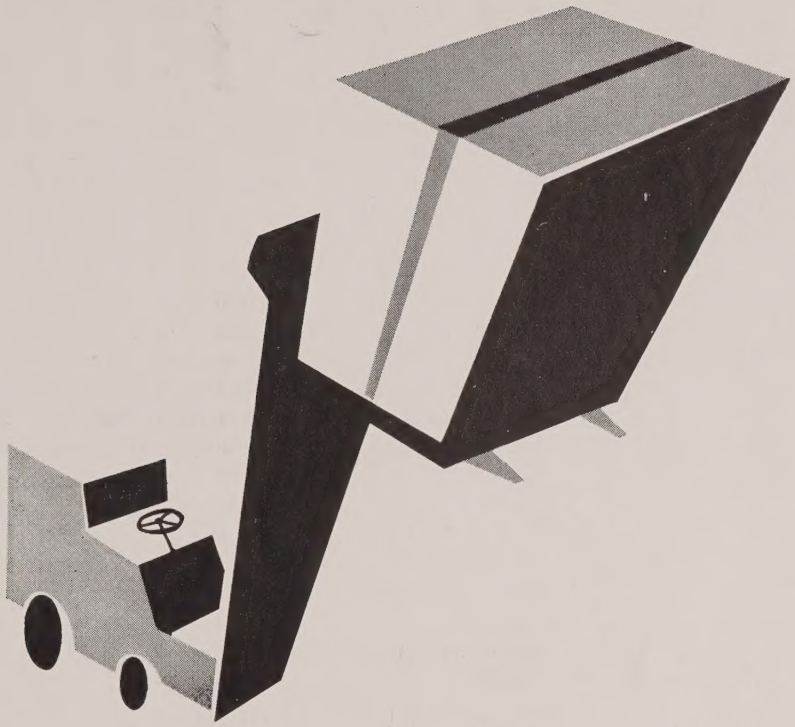
Holland, a member of a Pittsburgh steelworkers union, said that the report was "by no means complete." As we see it, the report is by no means accurate.

According to the January, 1961, issue of Monthly Labor Review, published by the Bureau of Labor Statistics, clerical employment rose from 8.5 million in 1955, to 9.7 million in 1960. It would seem difficult for even an over-zealous New Frontiersman to twist those figures into a 25 percent deficit.

The Congressman's claims are further refuted by another official labor department publication — Bulletin 1276 (May, 1960) — which studied the implications of installations of electronic data processing in 20 offices in private industry. Summarizing the displacement and reassignment brought on by the large-scale computers, the Bulletin reports that of the 2,800 employes in the affected units, "only nine persons had been laid off." Other surveys, conducted both among private industry and government agencies have disclosed similar results.

The Labor Review also effectively refutes Rep. Holland's dire projection of the future. It estimates that "by 1970, white-collar workers are expected to number 37 million . . . ." This represents an increase of nearly nine million over the 1960 figure. As clerical workers now represent about 34 percent of the white-collar force, it seems reasonable that the nine million increase would result in a minimum of several million more clerical jobs in the next decade.

We share Congressman Holland's concern over unemployment, whatever the cause. We know that in any process of change some individuals inevitably suffer as a result of displacement. But history provides strong assurance that technological progress is accompanied by high levels of employment. We trust that in considering the Holland report, the President will be able to separate fact from fiction.



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# Keysort® Data Processing

Fast, accurate inventory control is at your fingertips with low-cost Keysort Data Processing.

Keysort Data Processing is being used by hundreds of businesses for up-to-the-minute reports on inventory, order and sales analysis, job and labor costing, management control and other vital data.

### Fits any size business

Keysort has many advantages. No restrictive procedures, minimum training, remarkable economy, simplicity of installation and operation. In fact, Keysort is the only automated data processing system flexible enough to fit your business as it stands *and* as it grows. And at a cost well within your company's budget.

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